MAXSUN Motherboard

MS-Terminator B850BKB WIFI

AMD B850 · Socket AM5 (LGA1718) · Mini-ITX BKB

USER MANUAL (US ENGLISH TRANSLATION)

Unofficial English translation of MAXSUN document *MS-TerminatorB850BKBWIFI_A0*
Translation edition: 30 August 2026 · check the date here against any later revision
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Contents

About This Translation 4
- Corrections and clarifications 4

Warranty Terms 6
- 1. Three-year repair service 6
- 2. Conditions not covered by warranty service 6

Legal Statements 8
- Copyright 8
- About this manual 8
- Outside normal warranty scope 8
- Operating environment 8
- FCC statement 8
- Canadian statement 9

Safety Information 10

Common Questions & Tips 11
- Memory slot population 11
- No display at power-on / boot stalls at the VGA debug LED / QR code shows d6 11
- The system enters the BIOS directly after power-on, restart, or OS installation, and will not boot into the OS 12

Package Contents 13

Specifications 14

Connector Layout 16
- Front side 17
- Rear side 17
- Rear I/O panel, left to right 17

Distributed Debug LEDs 18

Quick Start Checklist 19

Connector Installation Guide 20
- AMD AM5 LGA1718 processor 20
- AMD AM5 LGA1718 CPU cooler 20
- DDR5 DIMM memory 21
- 24-pin ATX power connector 21
- CPU 8-pin +12V power connector 22
- PCIe x16 slot 22
- PCIe x4 slot 23
- M.2 (Key M) slots 23
- 4-pin PUMP header 24
- 4-pin chassis fan headers 24
- Front panel USB Type-C® header 25
- USB 3.2 Gen 1 front header (19-pin) 25
- USB 2.0 front header (9-pin) 26

3-pin ARGB header 26
SATA ports 27
SFF-8654 4i (SlimSAS) port 27
10-1 pin F_PANEL system panel header 28
F_AUDIO front panel audio header 28
COM header (JCOM1) 29
PC speaker header (BUZZER) 29

Rear I/O Guide 30

USB 2.0 Type-A ports 30
USB 3.2 Type-A ports 30
USB Type-C® port 30
HDMI™ port 30
DisplayPort 30
RJ45 LAN port 31
Wi-Fi antenna connectors (external thread, internal pin) 31
5.1-channel audio jacks 31

BIOS Guide 32

1. BIOS overview 32
2. Using the BIOS 32
3. Interface overview 33
BIOS screens and features 37

Platform & BIOS Updates (researched Aug 2026) 49

Where BIOS updates for this board come from 49
BIOS releases for this board 49
Two ways to flash 50
AMD AGESA microcode: what the updates since launch contain 50
Beta BIOS builds: what's in them 51
Drivers 51
Practical notes 51

Appendix: Quick Reference 52

At a glance 52
First-boot troubleshooting order 52
Support 53

About This Translation

This is an unofficial English rendering of the Simplified Chinese manual supplied with the MS-Terminator B850BKB WIFI. It is intended as a working reference. Where the two disagree, the original Chinese document and MAXSUN technical support are authoritative.

Corrections and clarifications

The original manual contradicts itself in several places, mostly because it reuses boilerplate pages shared across the MAXSUN motherboard line. Each conflict below was checked against MAXSUN's own product page and independent coverage before this translation settled on a reading. Corrected values are used throughout this document; the original wording is noted so nothing is silently lost.

Item	Conflict in the original	Resolution used here	Basis
HDMI version	Main spec table says HDMI 2.0; the rear-panel sub-table on the next page says HDMI 1.4.	**HDMI 2.0**, up to 4K@60Hz.	MAXSUN product page lists HDMI 2.0 at 4K@60Hz; launch coverage agrees. HDMI 1.4 appears to be copied from the B850M WIFI, a different model.
Type-C speeds	Spec table: front header 20 Gbps, rear port 10 Gbps. The board-layout diagram labels them the opposite way (front 10G, rear 20G).	**Front header 20 Gbps; rear port 10 Gbps** (rear also carries DP 1.4 Alt Mode).	MAXSUN product page and press coverage both give front 20 Gbps / rear 10 Gbps. The diagram labels are swapped.
M.2_B host	Spec table lists M.2_B under the CPU as PCIe 5.0 x4; the layout diagram marks it "(PCH)".	**CPU-attached, PCIe 5.0 x4/x2**, on the rear of the board.	MAXSUN lists both M.2 slots under the processor; the B850 chipset does not provide PCIe 5.0. The "(PCH)" label is an error.
Pump header control	Spec table: DC speed control. The installation page for the 4-pin PUMP header says it supports PWM.	**DC speed control** on this board.	MAXSUN product page states DC control for the PUMP header. The installation page is generic text shared across models.
M.2 length support	Spec table: 2242 / 2280. Installation page: "supports up to 22110."	**2242 and 2280 only.** There is no 22110 standoff position.	Model-specific spec table and product page. The 22110 line is generic.
Memory type	Spec table: 2 x DDR5 only. The quick-start list and memory installation page mention DDR4 / DDR5.	**DDR5 UDIMM only.** DDR4 will not fit and is not supported.	AM5 platform is DDR5-only; spec table and product page list DDR5.

Headers that do not exist	Generic pages describe a 4-pin 12V RGB header, a PS/2 port, a 7.1-channel rear audio bank, and PCIe x1 slots.	This board has **none** of those. It has a 3-pin 5V ARGB header, three rear audio jacks, one PCIe x4 slot on the front side.	Model-specific spec table, board layout, and rear I/O photo. Those pages are shared boilerplate. The five generic sections (CPU 4-pin +12V power connector, PCIe x1 slot, 4-pin RGB header, PS/2 port, and 7.1-channel audio jacks) are **removed from this translation entirely**; this row records what the original contained.
PC speaker header (BUZZER)	Not shown anywhere in the manual; absent from the layout diagram.	**Present on the board:** a 2-pin header silkscreened **BUZZER** on the front edge beside the front-panel header cluster.	Also added to the spec table's internal connectors.
SlimSAS SATA mode	Neither the manual nor the specification mentions SATA breakout on the SFF-8654 port.	The physical board is silkscreened **PCIE / SATA** at the connector, indicating both modes are wired. Mode selection method unconfirmed.	See the SlimSAS section.
COM header (JCOM1)	Listed in MAXSUN's specification; absent from the manual's layout diagram.	**Present on the board:** silkscreened JCOM1, a keyed 9-pin block on the front edge beside the USB header cluster.	Standard pinout given in the Connector Installation Guide.

Detail confirmed outside the manual

- The rear-mounted PCIe 5.0 x16 slot supports **x8 + x8 bifurcation**, which the manual does not mention. Availability still depends on BIOS version and CPU.
- The VRM is a **6+2+1 phase SPS / DrMOS design with 110 A core stages**, consistent with the manual's wording.
- The manual documents no PCIe lane-sharing restrictions between the x16 slot, the two M.2 slots, and the SlimSAS port. If you intend to populate all of them at once, confirm the current behavior with MAXSUN support for your BIOS revision.

Conventions

- Chinese-market service details (the 400 support number, the national "Three Guarantees" scheme) are translated as written. They apply to units sold in mainland China.
- Every figure from the original is reproduced here, at its source position in the text, with the original page cited in each caption. Labels that exist as selectable text in the source carry **green English tags** placed beside the Chinese; where the original label is wrong, the tag is **amber** and says so. Screenshots and drawings with Chinese baked into the artwork instead carry a translation key on a green-ruled strip beneath the image.

Warranty Terms

Dear customer: thank you for purchasing a MAXSUN product. If you have any question while using a MAXSUN motherboard, contact your local MAXSUN technical support center, or call Shangke at +86-400-696-0606 for after-sales service.

In accordance with the responsibilities set out in China's national "Three Guarantees" (repair, replacement, refund) quality-inspection rules, Shangke provides a three-year quality warranty. The detailed terms follow.

1. Three-year repair service

From the first through the third year after sale, if the product develops a quality problem listed in the *Microcomputer Product Performance Fault Schedule* under normal use, and the product falls within normal warranty coverage, the final seller shall provide the corresponding service under the "Three Guarantees" rules.

If a failed component has been discontinued and no equivalent part can be sourced on the market, Shangke will negotiate with you to exchange the product for a different one, with a depreciation adjustment and price difference settled between the parties (defective units are depreciated at the rate specified by the "Three Guarantees" rules).

2. Conditions not covered by warranty service

"Three Guarantees" service cannot be provided in any of the following cases:

1. A motherboard with no fault.
2. A motherboard past its warranty period.
3. A motherboard with physical damage from improper use, such as missing board components or connectors, a deformed PCB, severely scratched or oxidized/corroded traces, or burnt-out major components.
4. A motherboard whose barcode has been defaced, lost, moved, or damaged.
5. A motherboard damaged by negligence, misuse, or irresistible external force (for example water ingress, fire, lightning strike, or other mechanical damage), or damaged by use that does not follow this manual.
6. A motherboard damaged in transit to the service center because of inadequate packaging or mishandling during shipping.
7. A motherboard rendered unrecoverable because you or a third party attempted to disassemble or replace components (heatsinks and similar parts) without authorization.

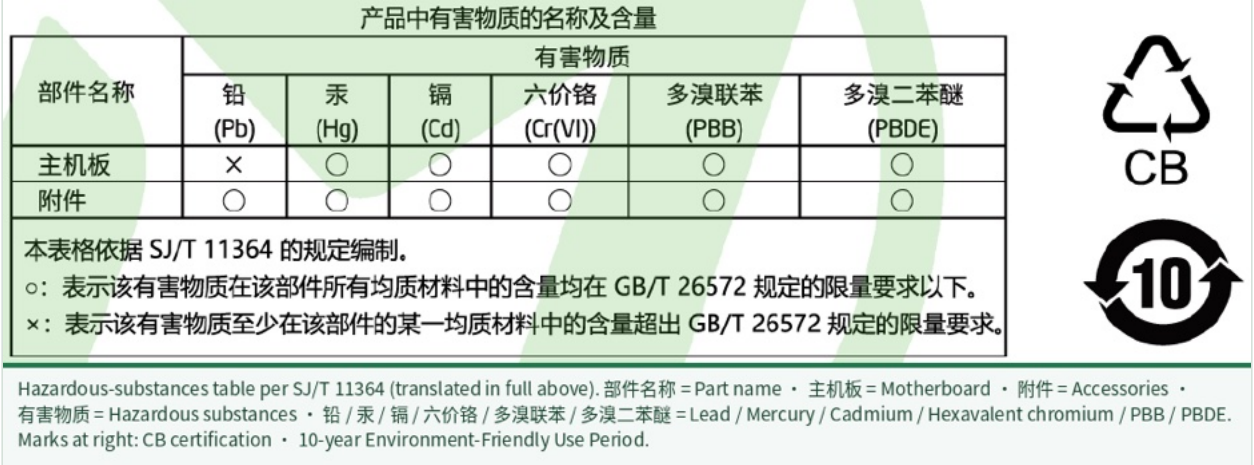
> **Notes.** 1. Anything not covered above follows the national "Three Guarantees" regulations. 2. The company reserves the right to determine the cause of a MAXSUN motherboard failure, and reserves final interpretation of the terms above.

Hazardous substances in this product

Prepared per SJ/T 11364. "O" indicates the substance is below the limit in GB/T 26572 in all homogeneous materials of that part. "X" indicates the substance exceeds the GB/T 26572 limit in at least one homogeneous material of that part.

Part	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	PBB	PBDE
Motherboard	X	O	O	O	O	O
Accessories	O	O	O	O	O	O

The product also carries the CB mark and a 10-year Environment-Friendly Use Period mark.



产品中有害物质的名称及含量

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
主机板	×	○	○	○	○	○
附件	○	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

CB

10

Hazardous-substances table per SJ/T 11364 (translated in full above). 部件名称 = Part name · 主机板 = Motherboard · 附件 = Accessories · 有害物质 = Hazardous substances · 铅 / 汞 / 镉 / 六价铬 / 多溴联苯 / 多溴二苯醚 = Lead / Mercury / Cadmium / Hexavalent chromium / PBB / PBDE. Marks at right: CB certification · 10-year Environment-Friendly Use Period.

Original hazardous-substances table with certification marks; full translation above (orig. p. 4)

Legal Statements

Copyright

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About this manual

This manual is written for first-time builders. It covers product features, software installation, and explanations of common terms. Treat it as technical reference material; the physical product takes precedence where they differ.

Outside normal warranty scope

1. Faults or damage caused by improper use or installation, self-disassembly, part replacement, or arbitrary changes to specifications are not covered.
2. Once the product has been altered or modified, and for any indirect, special, or incidental damage, coverage does not apply.

Operating environment

Avoid using this product in high temperature, low air pressure, low temperature, humid, dusty, or strong-magnetic-field environments, and avoid prolonged exposure to sunlight. MAXSUN recommends use below 3,000 m (9,800 ft) elevation, at 0 °C to 35 °C (32 °F to 95 °F), and 5% to 95% humidity.

FCC statement

This device complies fully with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device does not cause personal injury.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for additional help.

> **Warning.** To comply with emission limits, shielded interface cables must be used. Changes or modifications not expressly approved may void the user's authority to operate this equipment.

Canadian statement

Under the Radio Interference Regulations of the Canadian Department of Communications, the noise emissions from this device do not exceed the Class B limits.

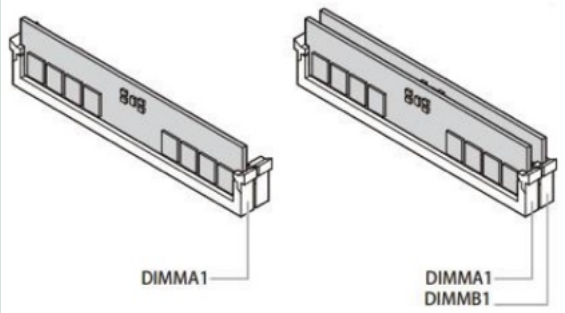
Safety Information

- The components in this package can be damaged by electrostatic discharge (ESD). Follow the precautions below to assemble your computer successfully.
- Make sure all components are seated firmly. A loose connection can prevent the computer from recognizing a component, or from powering on at all.
- Hold the motherboard by its edges. Avoid touching sensitive components on the board.
- Wear an ESD wrist strap when handling the motherboard, to prevent static damage to its configuration. If a wrist strap is not available, discharge yourself by touching another metal object before picking up the board.
- When the motherboard is not installed, keep it in an antistatic shielding bag or on an antistatic mat.
- Before powering on the computer, confirm that no loose screws or metal parts are resting on the motherboard or anywhere inside the chassis.
- Do not start the computer before installation is complete. Doing so can permanently damage components and injure the user.
- If you need help at any installation step, consult a qualified computer technician.
- Turn off the power and unplug the power cord from the outlet before installing or removing any computer component.
- Keep this user guide for future reference.
- Keep the motherboard away from moisture.
- Before connecting the power supply to a wall outlet, confirm that the outlet supplies the voltage indicated on the power supply's rating label.
- Route the power cord where it will not be stepped on, and do not place objects on it.
- Observe all warning labels on the motherboard.
- Have the motherboard inspected by service personnel if any of the following occurs:
  - Liquid has penetrated the computer.
  - The motherboard has been exposed to moisture.
  - The motherboard does not work, or you cannot get it working after following this guide.
  - The motherboard has been dropped and damaged.
  - The motherboard shows obvious signs of damage.
- Never place the motherboard in an environment above 60 °C (140 °F), or the board may be damaged.

Common Questions & Tips

Memory slot population

> **For this board.** The MS-Terminator B850BKB WIFI has two DIMM slots, labeled A1 and B1 on the board. For a two-module dual-channel kit, populate both. For a single module, use A1 first. The BIOS also has a memory-slot warning feature that will alert you at power-on if modules are in a suboptimal position.



Slot population on this board: A1 for one module, A1 + B1 for two (dual channel) (orig. p. 7)

No display at power-on / boot stalls at the VGA debug LED / QR code shows d6

Check whether the graphics card in use supports UEFI boot mode. If it does not, replace it with a card that does.

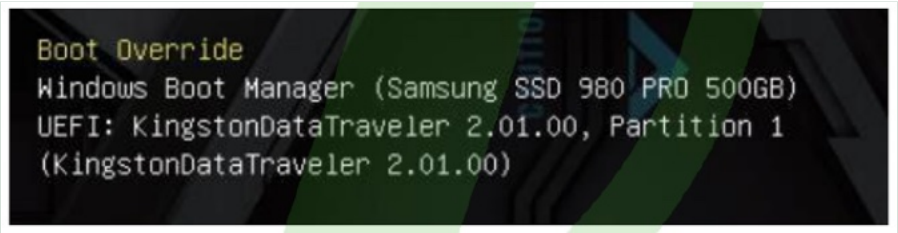
The original manual illustrates this with a GPU-Z screenshot: on the *Graphics Card* tab, the *BIOS Version* row has a **UEFI** checkbox. GPU-Z explains that this shows whether the video card BIOS embeds a UEFI module, which is needed for OS features such as Secure Boot and Fast Boot; without it, the system BIOS must run CSM to boot with that card. (orig. p. 7)

GPU-Z: the UEFI checkbox beside BIOS Version shows whether the card supports UEFI boot (orig. p. 7)

The system enters the BIOS directly after power-on, restart, or OS installation, and will not boot into the OS

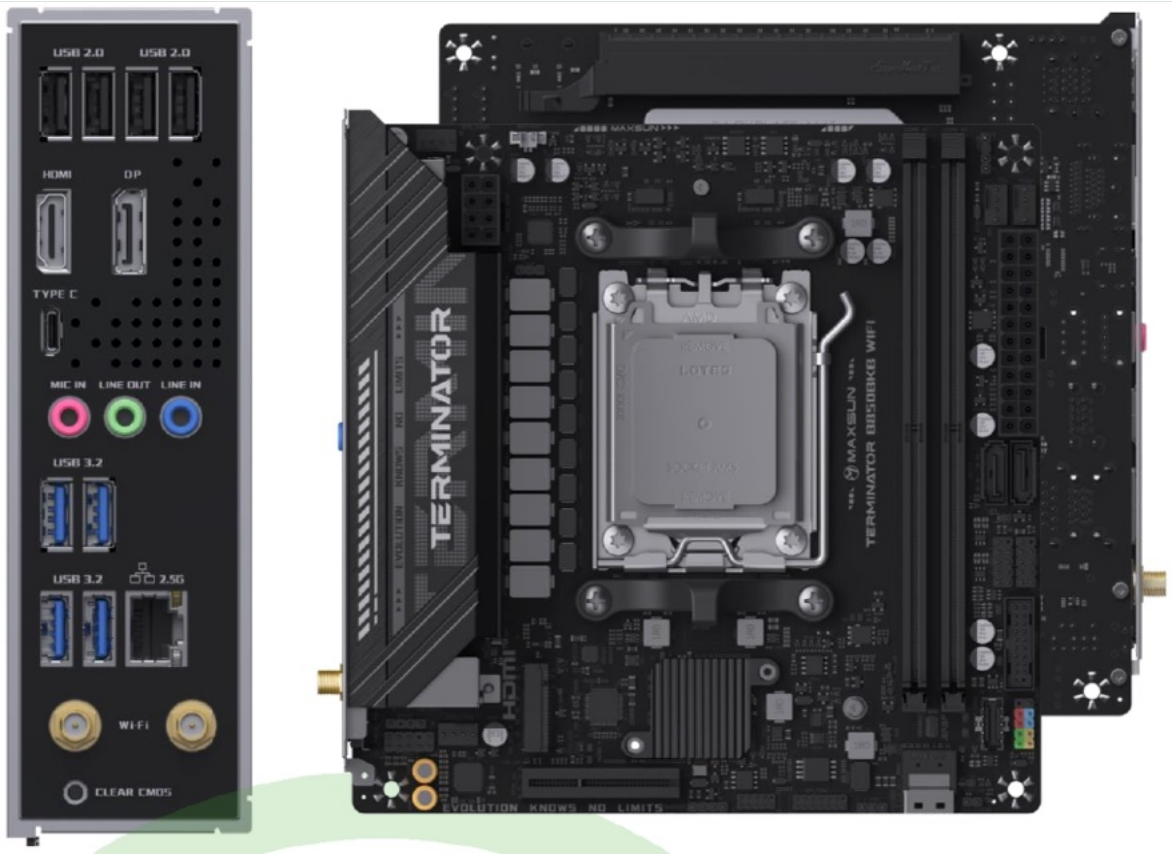
Check whether the installed operating system uses UEFI boot format, which requires the disk to use a GPT partition table. If it does not, reinstall the operating system in UEFI boot format.

In the BIOS *Boot Override* list, a UEFI-bootable installation appears as an entry such as "Windows Boot Manager" or an entry prefixed "UEFI:". (orig. p. 7)


Boot Override
Windows Boot Manager (Samsung SSD 980 PRO 500GB)
UEFI: KingstonDataTraveler 2.01.00, Partition 1
(KingstonDataTraveler 2.01.00)

A UEFI-bootable install as it appears in the Boot Override list (orig. p. 7)

Package Contents



Rear I/O panel and board, front face (orig. p. 8)

Item	Contents
Motherboard	1 x MS-Terminator B850BKB WIFI motherboard
Cables	1 x SATA 6Gb/s data cable
Other accessories	1 x M.2 SSD screw pack 2 x Wi-Fi gain antennas 1 x product warranty card

> No SlimSAS (SFF-8654 4i) cable is included. If you plan to use that port for a U.2 drive, buy the adapter cable separately and check the specification table below for the supported modes.

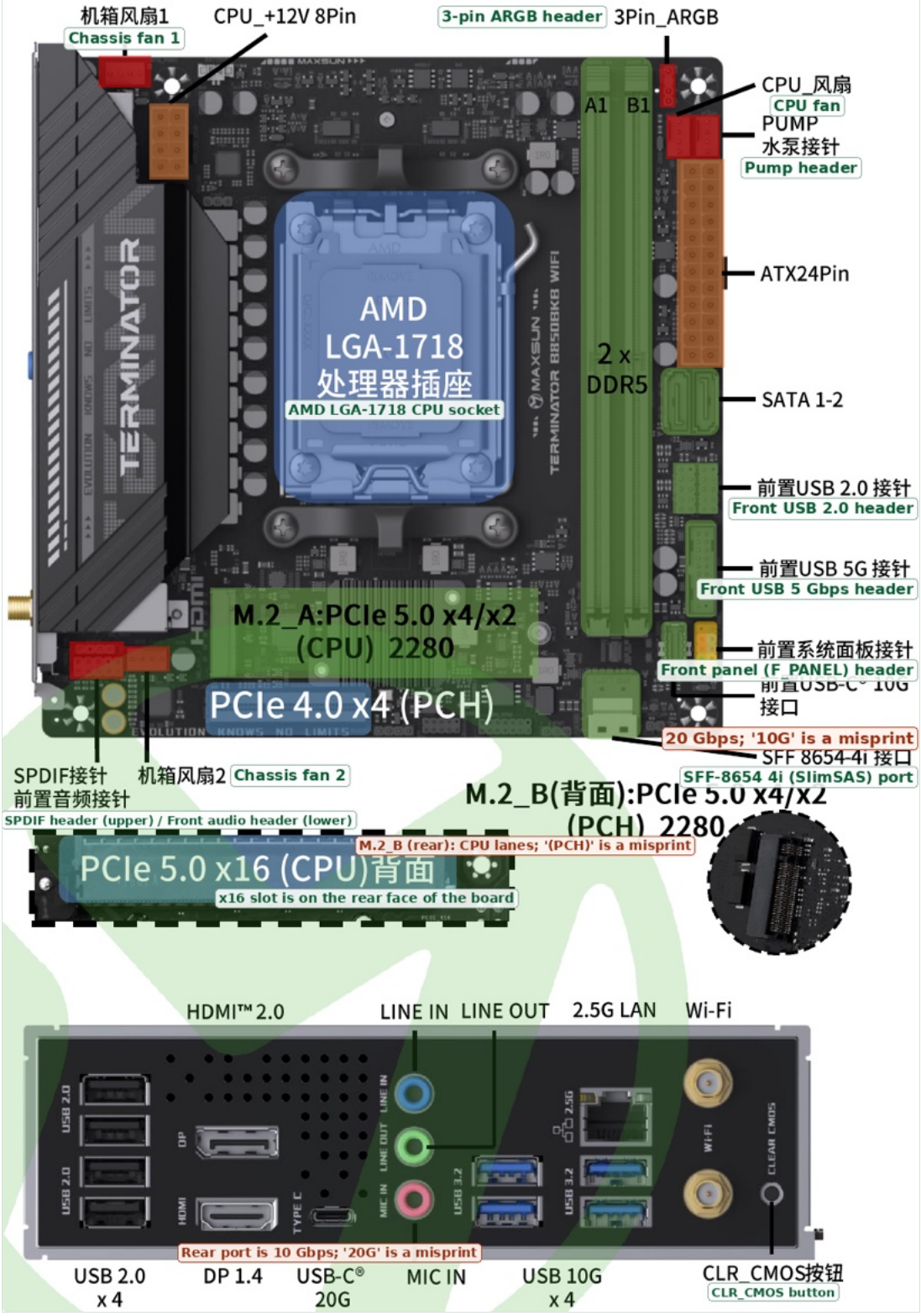
Specifications

Model	MS-Terminator B850BKB WIFI
Form factor	Mini-ITX, 171 mm x 171 mm (6.73 in x 6.73 in)
Processor	AMD AM5 socket, for AMD Ryzen™ 9000 / 8000 / 7000 series desktop processors
Power stages	6+2+1 phase SPS design (110 A core stages)
Chipset	AMD B850
Memory	2 x DIMM DDR5, up to 128 GB Dual-channel memory architecture AMD EXPO (Extended Profiles for Overclocking) supported Supported speeds: 8400 (OC) / 8200 (OC) / 8000 (OC) / 7600 (OC) / 7400 (OC) / 7200 (OC) / 7000 (OC) / 6800 (OC) / 6600 (OC) / 6400 (OC) / 6000 (OC) / 5600 (OC) / 4800 MHz
Display outputs	1 x DisplayPort 1.4, up to 4K@60Hz as specified 1 x HDMI™ 2.0, up to 4K@60Hz as specified Graphics capability varies by CPU model; see www.AMD.com for details. Requires a processor with integrated graphics.
PCIe expansion	**From AMD Ryzen™ 9000 / 8000 / 7000 processor:** 1 x PCIe x16 slot (mounted on the rear of the board; up to PCIe 5.0 x16 mode) – With Ryzen™ 7000 / 9000 series: runs at PCIe 5.0 x16 – With Ryzen™ 8000 series: runs at PCIe 4.0 x8/x4 **From AMD B850 chipset:** 1 x PCIe x4 slot (PCIe 4.0 x4 mode)
Storage	Total: 2 x M.2 slots, 2 x SATA 6Gb/s ports, 1 x SFF-8654 4i port **From AMD Ryzen™ 9000 / 8000 / 7000 processor:** M.2_A (Key M): PCIe 5.0 x4/x2 mode, 2242 / 2280 lengths – With Ryzen™ 7000 / 9000 series: runs at PCIe 5.0 x4 – With Ryzen™ 8000 series: runs at PCIe 4.0 x4/x2 M.2_B (Key M): PCIe 5.0 x4/x2 mode, 2242 / 2280 lengths – With Ryzen™ 7000 / 9000 series: runs at PCIe 5.0 x4 – With Ryzen™ 8000 series: runs at PCIe 4.0 x4/x2 **From AMD B850 chipset:** 1 x SFF-8654 4i port: PCIe 4.0 x4/x2 2 x SATA 6Gb/s ports
Networking	1 x Realtek RTL8125 2.5 Gb Ethernet 1 x MediaTek MT7922 wireless card: Wi-Fi 6E and Bluetooth® v5.4
USB	**Onboard headers (7 ports total):** 1 x USB 20 Gbps Type-C® front-panel header 1 x USB 5 Gbps 19-pin header, supporting 2 additional USB 5 Gbps ports 2 x USB 2.0 9-pin headers, supporting 4 additional USB 2.0 ports **Rear panel (9 ports total):** 1 x USB 10 Gbps Type-C® port (supports DisplayPort 1.4 video output up to 4K@60Hz as specified) 4 x USB 10 Gbps Type-A ports 4 x USB 2.0 Type-A ports
Audio	Realtek ALC897 high-definition audio codec

Rear panel I/O	4 x USB 2.0 Type-A 1 x HDMI™ 2.0 1 x DisplayPort 1.4 1 x USB 10 Gbps Type-C® 3 x audio jacks 4 x USB 10 Gbps Type-A 1 x Realtek 2.5 Gb Ethernet 1 x Wi-Fi antenna connector pair 1 x CLR_CMOS button
Internal I/O	**Power** 1 x 24-pin ATX power connector 1 x 8-pin +12V power connector **Fans** 1 x 4-pin CPU fan header 1 x 4-pin PUMP header (DC speed control) 2 x 4-pin chassis fan headers **Storage** 2 x M.2 slots (Key M) 1 x SFF-8654 4i port 2 x SATA 6Gb/s ports **Onboard USB** 1 x USB 20 Gbps Type-C® front-panel header 1 x USB 5 Gbps 19-pin header (2 additional USB 5 Gbps ports) 2 x USB 2.0 9-pin headers (4 additional USB 2.0 ports) **Other** 1 x 3-pin ARGB header 1 x keyed 9-pin COM port header (silkscreened **JCOM1**, on the front edge beside the USB header cluster) 1 x 2-pin PC speaker header (silkscreened **BUZZER**; not shown in the manual's layout diagram) 1 x front panel audio header 1 x 10-1 pin system panel header 1 x CLR_CMOS reset header 1 x SPDIF header
Operating systems	Windows® 11, Windows® 10 64-bit
Signature features	Distributed debug LEDs Maxsun Sync lighting control CLR_CMOS quick button SFF-8654 4i port Resizable BAR support

Connector Layout

The board layout diagram (orig. p. 11) is transcribed below by board position. This is a BKB-style board: the primary PCIe x16 slot and the M.2_B slot are on the **rear** face, so the graphics card mounts back-to-back against the motherboard without a riser cable.



Board layout with English tags; amber tags mark the original's misprints (orig. p. 11)

Details the layout diagram omits: 2-pin chassis speaker or piezo buzzer header (**BUZZER**) sits on the board's front edge beside the front-panel header cluster; a COM header (**JCOM1**), a keyed 9-pin block beside the USB header cluster on the same edge; and an undocumented **FW1** header appears near the SATA ports. The original also labels the rear Type-C port "USB-C 20G" and the front header "10G"; both labels are swapped: the correct values are rear 10 Gbps and front 20 Gbps, as reflected in the diagram's amber tags and the specification table.

Front side

Location	Connector
Top edge	Chassis fan 1 header (far left) · CPU +12V 8-pin power connector · 3-pin ARGB header (far right)
Right edge, top to bottom	CPU fan header · PUMP header · 24-pin ATX power connector · SATA 1–2 ports
Right edge, lower	Front USB 2.0 header · front USB 5 Gbps (19-pin) header · front system panel header · front USB Type-C® 20 Gbps header
Bottom right	SFF-8654 4i (SlimSAS) port
Center	AMD LGA-1718 processor socket · 2 x DDR5 slots (A1, B1) to the right of the socket
Below the socket	M.2_A slot: PCIe 5.0 x4/x2 (CPU), 2280
Bottom edge	PCIe 4.0 x4 slot (chipset) · chassis fan 2 header · SPDIF header and front panel audio header (bottom left)

Rear side

Location	Connector
Board edge	PCIe 5.0 x16 slot (CPU), mounted flat against the rear face of the board
Rear face	M.2_B slot: PCIe 5.0 x4/x2 (CPU), 2280

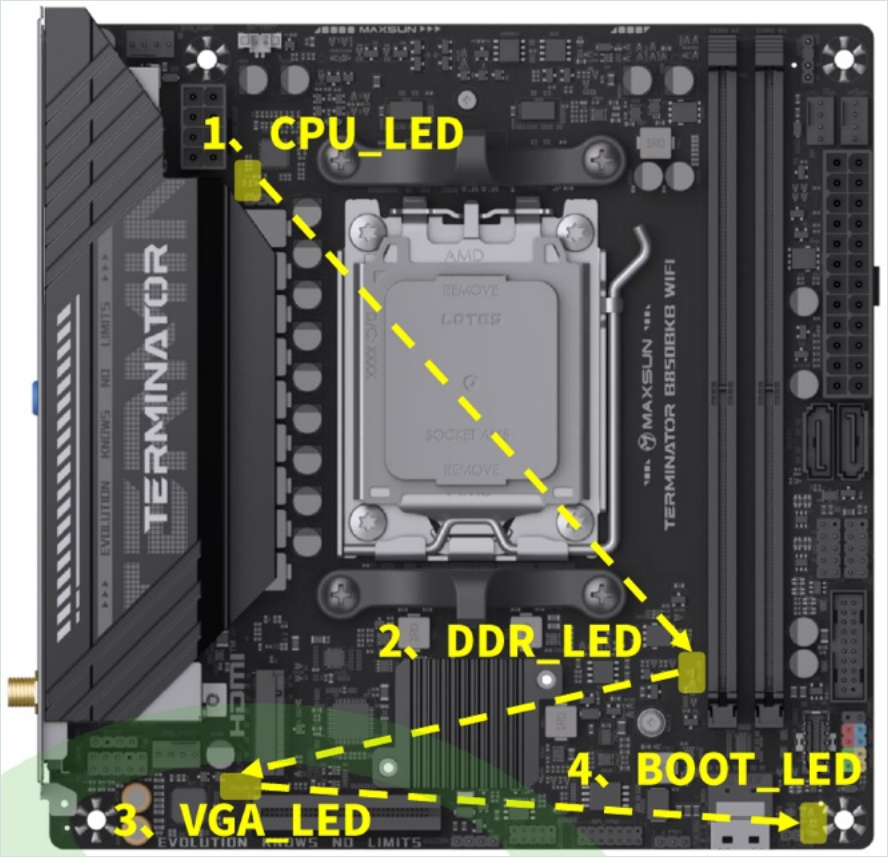
Rear I/O panel, left to right

Group	Ports
Column 1	4 x USB 2.0 Type-A (stacked in two pairs)
Column 2	DisplayPort 1.4 (upper) · HDMI™ 2.0 (lower)
Column 3	USB Type-C® 10 Gbps, with DisplayPort 1.4 Alt Mode video output
Audio	Line In (blue, upper) · Line Out (green, middle) · Mic In (pink, lower)
Column 5	4 x USB 10 Gbps Type-A (two stacked pairs)
Column 6	2.5G LAN (RJ45)
Right edge	2 x Wi-Fi antenna connectors · CLEAR CMOS button

Distributed Debug LEDs

Four status LEDs are distributed around the board rather than grouped in one corner. They light in sequence during power-on self-test (orig. p. 12):

CPU_LED → DDR_LED → VGA_LED → BOOT_LED



Debug LED positions and lighting sequence (orig. p. 12)

LED	Board position	Meaning when lit continuously
1. CPU_LED	Upper left, beside the CPU power connector	The CPU cannot be detected, or has faulted. Check whether the CPU is damaged, or whether the contacts on the underside of the CPU are contaminated (thermal paste, for example).
2. DDR_LED	Right of the socket, beside the DIMM slots	Memory cannot be detected, or has faulted. Check whether the modules are faulty, or whether changed overclocking parameters (voltage, timings, frequency) are the cause.
3. VGA_LED	Lower left of the board	The graphics card cannot be detected, or has faulted. Check whether the card is faulty, whether the discrete card's power connector and display output are properly connected, and whether the card is incompatible with UEFI boot mode.
4. BOOT_LED	Lower right of the board	The boot device cannot be detected, or has faulted. Check whether the boot device is damaged, or whether no boot device is present.

> Read the LEDs as a sequence: the stage that stays lit is the stage that failed. If BOOT_LED is the one lit, the CPU, memory, and graphics all initialized successfully.

Quick Start Checklist

Thank you again for choosing MAXSUN. The sections that follow introduce the connectors found on this motherboard and how to use them. Before you begin, make sure you have the following components and tools:

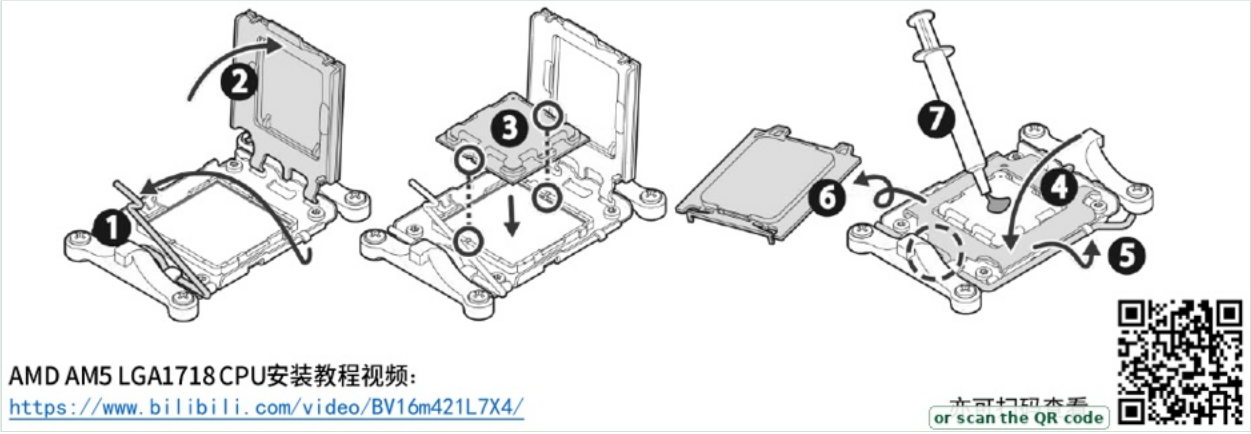
- AMD AM5 LGA1718 CPU
- AMD LGA1718 600/800 series motherboard
- LGA1718 CPU cooler and thermal paste
- DDR5 memory (the original lists "DDR4 / DDR5"; this board accepts DDR5 UDIMMs only)
- M.2 drive and/or SATA drive
- PCIe x16 graphics card (not required if the CPU has integrated graphics)
- Chassis
- Assembly screws and a screwdriver (desktop assembly generally uses M3 and #6 screw sizes)

Connector Installation Guide

AMD AM5 LGA1718 processor

Supports AMD AM5 LGA1718 Ryzen 7000 / 8000 / 9000 processors only. The socket is keyed; observe the alignment key when installing the processor to avoid damaging the CPU and the socket.

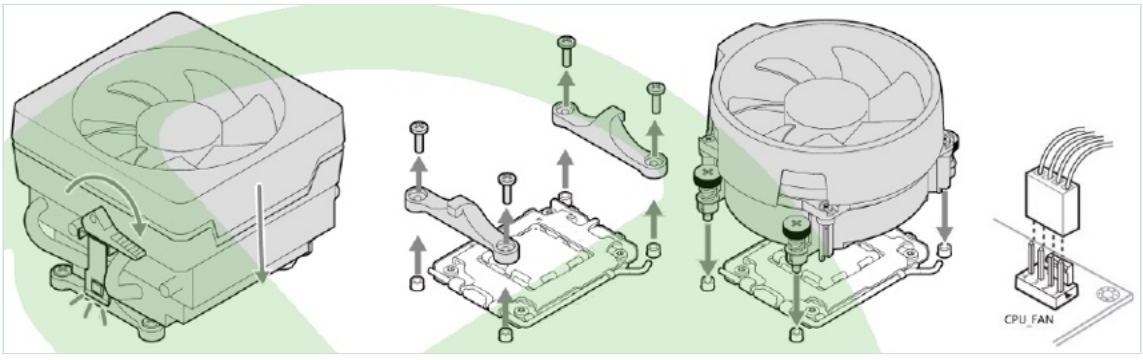
Installation sequence in the original figure: (1) release the retention lever, (2) lift the load plate, (3) lower the CPU straight down onto the alignment guides, (4)–(5) close the load plate and secure the lever, (6) remove the plastic socket cover, (7) apply thermal paste. MAXSUN also publishes a video walkthrough at https://www.bilibili.com/video/BV16m421L7X4/



CPU installation sequence; the QR code opens MAXSUN's video walkthrough (orig. p. 14)

AMD AM5 LGA1718 CPU cooler

Supports coolers with the LGA1718 mounting hole pattern only. Do not force a cooler with a different hole pattern into place, as this causes avoidable damage and faults. After mounting the cooler, remember to connect the 4-pin fan power header, otherwise the fan will not run and the CPU may be damaged by overheating.

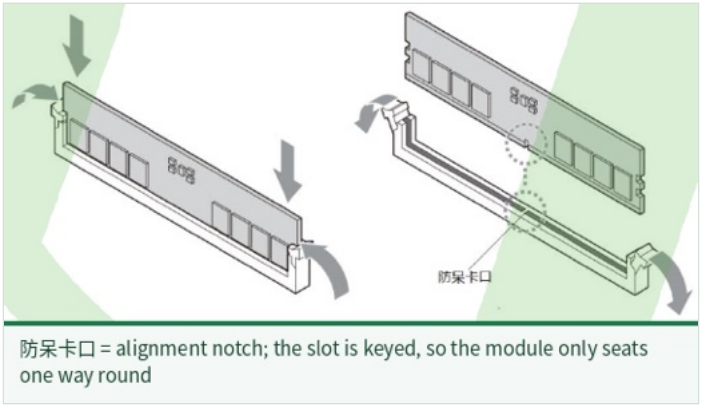


Cooler mounting and the 4-pin CPU_FAN connection (orig. p. 14)

DDR5 DIMM memory

Accepts UDIMM modules only. DDR5 modules default to 4800 MHz. The slots are keyed against incorrect insertion; never force a module in or out.

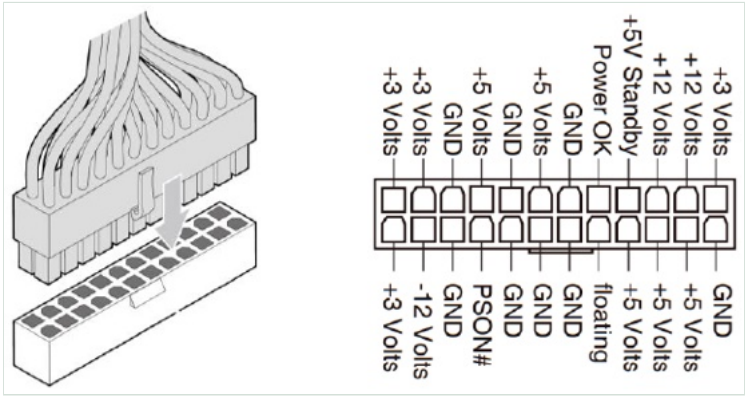
> The original page covers both DDR4 and DDR5 because it is shared across models. **This board is DDR5-only**: a DDR4 module will not fit and is not supported. Populate A1 and B1 for dual channel.



DIMM installation; press both latches home until they click (orig. p. 14)

24-pin ATX power connector

Supplies the 12V, 5V, and 3.3V rails the motherboard needs. The socket is keyed against incorrect insertion.

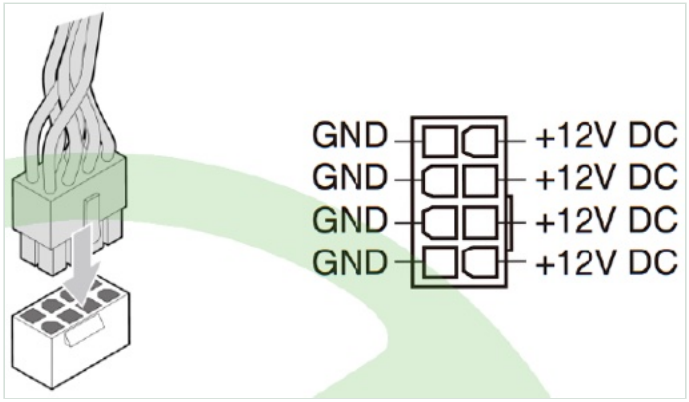


24-pin ATX connector and pinout (orig. p. 15)

CPU 8-pin +12V power connector

Supplies CPU +12V power. The connector is keyed. If a motherboard provides an 8+8 pin CPU power arrangement, populate both 8-pin connectors, to avoid cable overheating and needless hardware damage.

> This board has a single 8-pin CPU power connector, not 8+8. One 8-pin cable is all that is required.

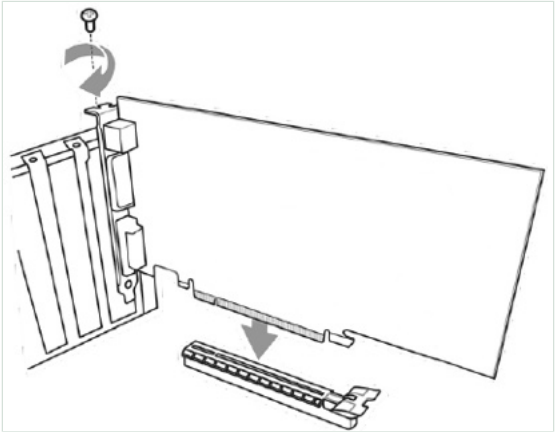


8-pin EPS +12V connector (orig. p. 15)

PCIe x16 slot

For full-length PCIe x16 devices; a discrete graphics card is the recommended use.

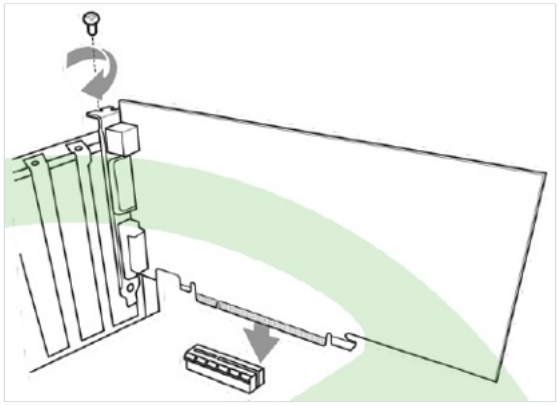
> On this board the x16 slot is on the **rear face**, lying flat along the board edge, so the graphics card mounts parallel to and directly against the motherboard. No riser cable is needed. Slot bifurcation to x8 + x8 is supported.



Seating a full-length x16 card and securing the bracket screw (orig. p. 16)

PCIe x4 slot

For PCIe x4 devices. On this board the x4 slot is on the front side, driven by the B850 chipset at PCIe 4.0 x4, and is open-ended at the rear so longer cards can be seated.

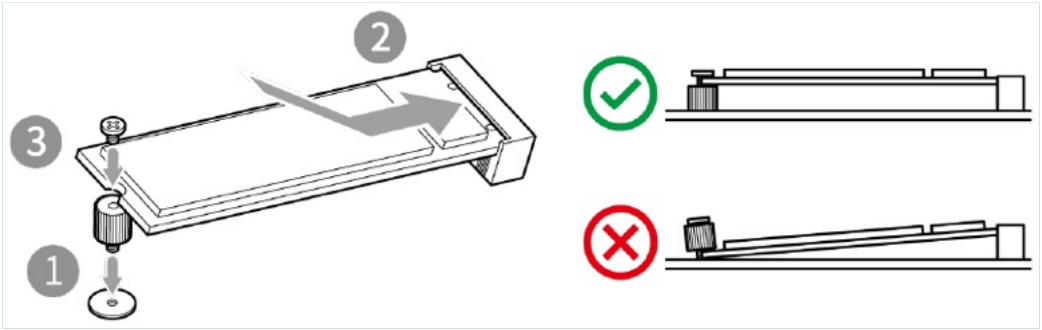


Seating a card in the x4 slot (orig. p. 16)

M.2 (Key M) slots

For M.2 storage devices. Supported lengths vary by model. When installing, tighten the retaining screw as shown in the original figure so that the drive cannot work loose or lose contact, which would risk data loss. Seat the drive at an angle into the slot, lower it flat, then secure the screw; the module should sit parallel to the board, not tilted.

> This board provides two Key M slots: **M.2_A** on the front side and **M.2_B** on the rear side. Both are CPU-attached and run at PCIe 5.0 x4/x2 with Ryzen 7000/9000 processors, and accept **2242 and 2280** drives. The generic "up to 22110" note in the original does not apply here.

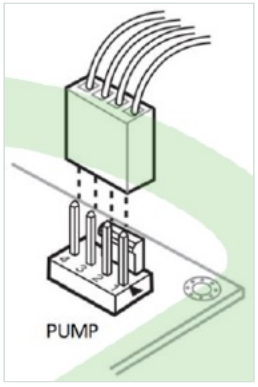


M.2 installation: seat at an angle, lower flat, secure the screw; module must sit parallel, not tilted (orig. p. 17)

4-pin PUMP header

Supplies power to the pump on a liquid CPU cooler. Connect it. If the pump is not powered, CPU heat cannot be carried away and hardware damage may follow. The header is keyed.

> The original page says this header runs in PWM mode. On this board the PUMP header uses **DC speed control**, per the specification table and the MAXSUN product page. A three-pin or four-pin pump connected here is regulated by voltage.

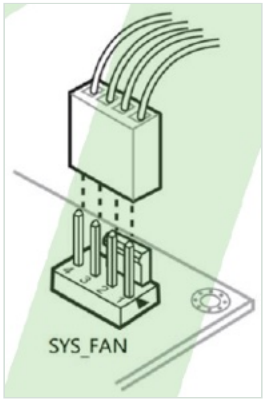


PUMP header connection (orig. p. 17)

4-pin chassis fan headers

For 4-pin cooling fans. Connect them. Without airflow, heat cannot leave the chassis and hardware damage may follow. The header is keyed and supports PWM mode.

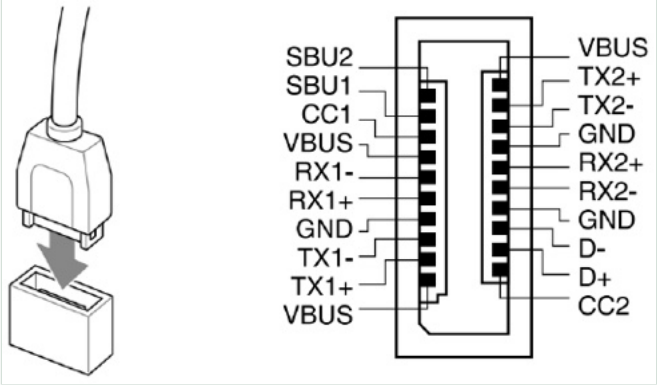
This board has two chassis fan headers (chassis fan 1 at the top edge, chassis fan 2 at the bottom edge), plus the CPU fan header and the PUMP header.



Chassis fan (SYS_FAN) header connection (orig. p. 17)

Front panel USB Type-C® header

Connects a Type-C® module, adding a front-panel Type-C® port or a rear expansion Type-C® port. This is a 20-pin internal Type-C header (Key A).

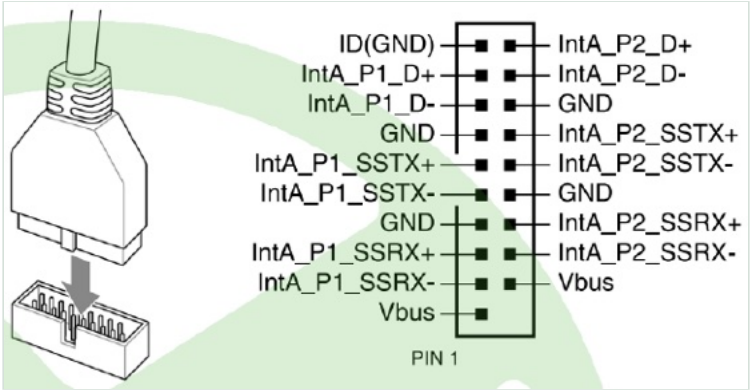


Front Type-C header and 20-pin (Key A) pinout (orig. p. 18)

On this board the front Type-C header operates at 20 Gbps.

USB 3.2 Gen 1 front header (19-pin)

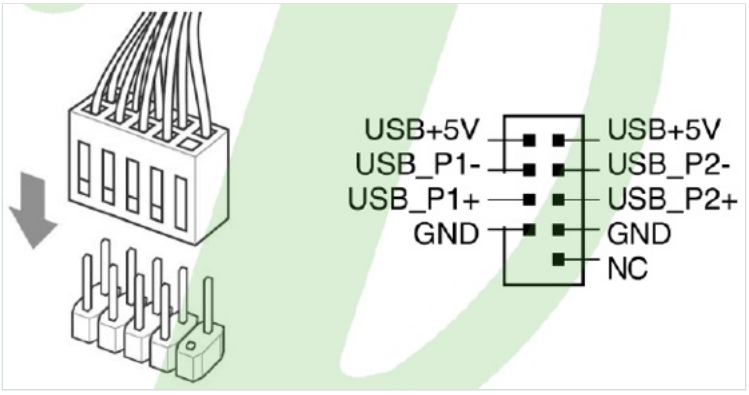
Connects a USB 3.2 module. One header supplies two front-panel USB 3.2 Gen 1 ports, or rear expansion ports. The header follows the USB 3.2 Gen 1 (5G) protocol, for transfer rates up to 5 Gb/s.



USB 3.2 Gen 1 19-pin header and pinout; pin 1 marked bottom-left (orig. p. 18)

USB 2.0 front header (9-pin)

Connects a USB 2.0 module. One header supplies two front-panel USB 2.0 ports, or rear expansion ports. The header follows the USB 2.0 (480M) protocol, for transfer rates up to 480 Mb/s.



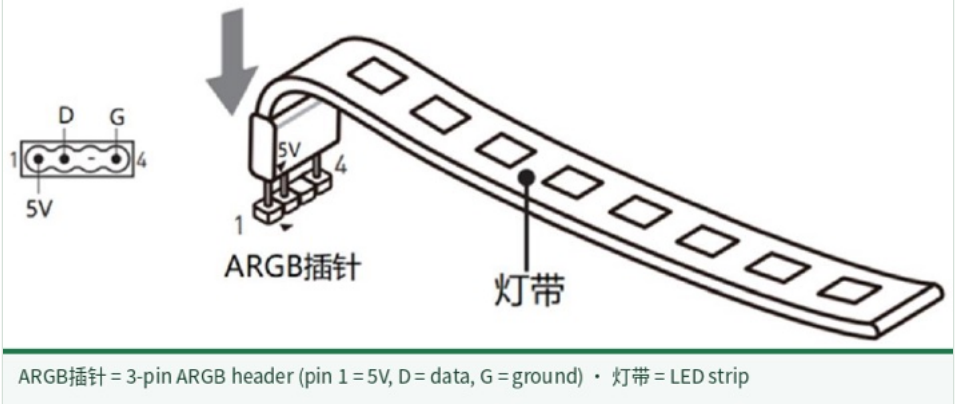
USB 2.0 9-pin header and pinout (orig. p. 18)

This board has two USB 2.0 headers, providing four additional USB 2.0 ports.

3-pin ARGB header

Connects 3-pin ARGB (addressable, 5V) lighting devices. Lighting effects are off by default. Effects can be controlled in the BIOS and, under the operating system, with MAXSUN SYNC lighting software.

> **Caution.** This header is not compatible with 4-pin 12V RGB devices. Connecting the wrong device type can damage it. Check the connector before plugging anything in.

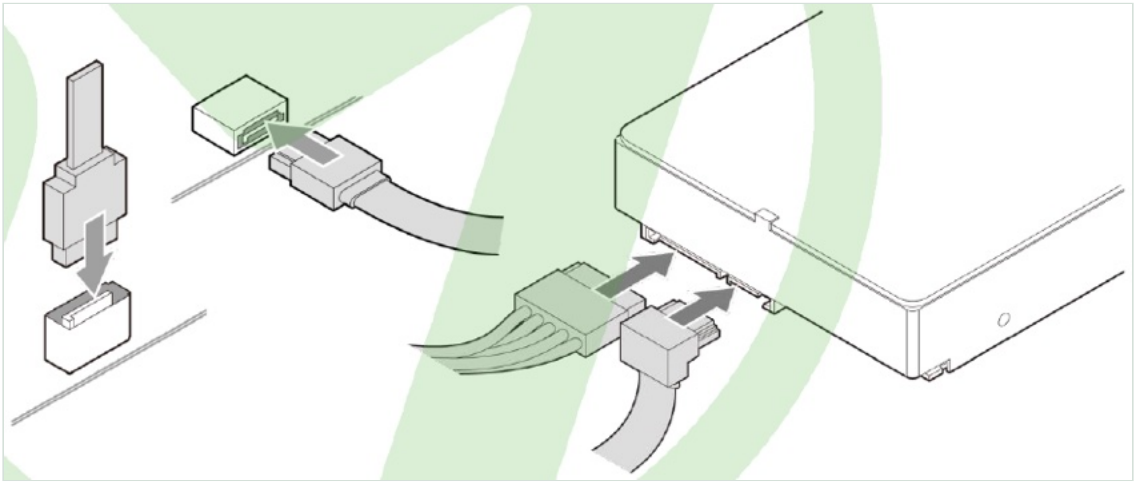


3-pin ARGB header and LED strip connection (orig. p. 19)

SATA ports

Connect SATA devices using a SATA data cable between the device and the motherboard's SATA port. The interface runs at up to 6 Gb/s. Some SATA devices, such as SATA hard drives, also need a separate power cable from the power supply.

This board provides two SATA 6Gb/s ports (SATA 1–2), driven by the B850 chipset. One SATA data cable is supplied in the box.



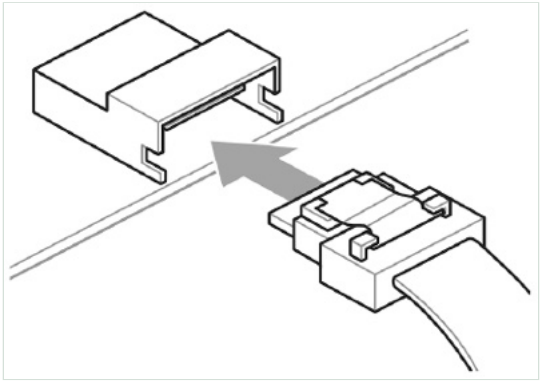
SATA data and power connections (orig. p. 19)

SFF-8654 4i (SlimSAS) port

Different Slim SAS cables can be used with the SFF-8654 4i port:

- Adapt to a U.2 connector, supporting NVMe devices at up to PCIe 4.0 x4 (check the specification table for the given board).
- Adapt to as many as four SATA ports, allowing four SATA devices at once (check the specification table for the given board).

> On this board the specification table lists the SFF-8654 4i port as **PCIe 4.0 x4/x2 from the B850 chipset**. The specification does not mention SATA breakout, but the physical board is silkscreened **PCIE / SATA** right at this connector, which indicates both modes are wired to the port. What remains unconfirmed is how the mode is selected (auto-detect or a BIOS option), so check with MAXSUN support before buying a SlimSAS-to-SATA breakout cable. No SlimSAS cable is included.

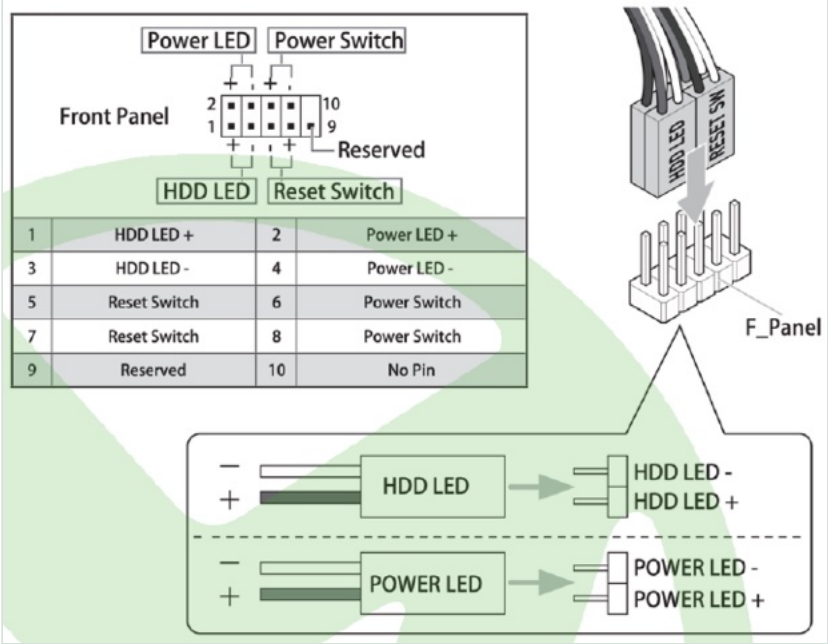


SFF-8654 (SlimSAS) cable connection (orig. p. 20)

10-1 pin F_PANEL system panel header

The chassis front panel header, for the power switch, reset switch, power LED, and drive activity LED.

LEDs are polarized: the HDD LED and Power LED connectors must go on with the marked positive lead to the "+" pin. The Power Switch and Reset Switch connectors are not polarized and can go on either way round.

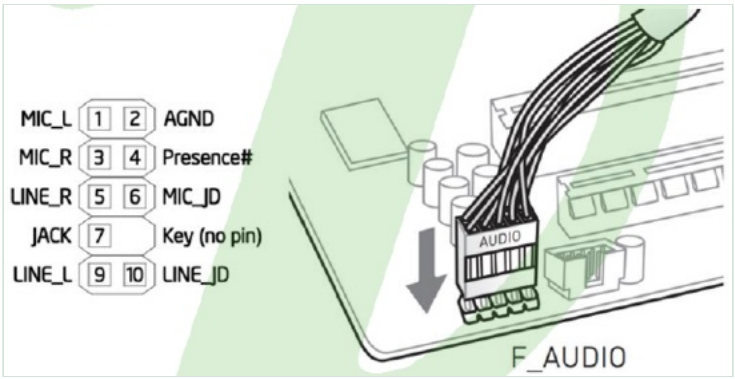


1	HDD LED +	2	Power LED +
3	HDD LED -	4	Power LED -
5	Reset Switch	6	Power Switch
7	Reset Switch	8	Power Switch
9	Reserved	10	No Pin

F_PANEL header, pin map, and LED lead polarity (orig. p. 20)

F_AUDIO front panel audio header

The chassis front panel audio header, for connecting the front panel audio module.



F_AUDIO header location and connection (orig. p. 20)

COM header (JCOM1)

A 9-pin serial (RS-232 level via the board's transceiver) header for a COM-port bracket or an internal serial device. MAXSUN documents no pinout for it, and the layout diagram does not mark it; the header was confirmed on the physical board, silkscreened **JCOM1**, on the front edge beside the USB header cluster. The table below is the near-universal motherboard COM header pinout (2 x 5 with pin 10 removed as the key).

Pin	Signal	Pin	Signal
1	DCD	**2**	RXD
3	TXD	**4**	DTR
5	GND	**6**	DSR
7	RTS	**8**	CTS
9	RI	**10**	Key (no pin)

> Because MAXSUN publishes no pinout for JCOM1, verify pin 1 (marked on the board next to the keyed corner) against your bracket's wiring before connecting anything. A reversed or non-standard COM cable can hold the port's handshake lines at the wrong level or short the transceiver.

PC speaker header (BUZZER)

A 2-pin header, silkscreened **BUZZER** on the board's front edge beside the front-panel header cluster, for a chassis PC speaker or a passive piezo transducer. MAXSUN does not document it; the board's primary power-on diagnostics are the four debug LEDs, and a speaker here adds audible signaling alongside them.

> Use a passive transducer here: a small magnetic PC speaker or a passive piezo element, either of which works in either orientation. Active (self-oscillating) piezo buzzer modules are not supported on this header. Nothing needs to be connected here for normal operation.

Rear I/O Guide

USB 2.0 Type-A ports

For USB Type-A devices. These ports follow the USB 2.0 (480M) protocol, for transfer rates up to 480 Mb/s. Best used for keyboards, mice, USB headsets, and other devices that do not need high transfer speeds.

USB 3.2 Type-A ports

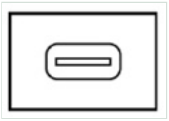
For USB Type-A devices. The protocol version varies by motherboard design; check the specification table for the given board. Best used for flash drives, portable drives, and other devices where transfer speed matters.

On this board these are the four blue **USB 10 Gbps** Type-A ports.

USB Type-C® port

For USB Type-C® devices. The protocol version varies by motherboard design; check the specification table for the given board. Best used for flash drives, portable drives, and other devices where transfer speed matters.

On this board the rear Type-C® port runs at **10 Gbps** and also carries DisplayPort 1.4 Alt Mode video output, up to 4K@60Hz as specified.



HDMI™ port

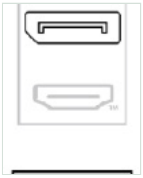
For HDMI™ display devices. The protocol version varies by motherboard design; check the specification table for the given board.

On this board: **HDMI 2.0**, up to 4K@60Hz. Requires a processor with integrated graphics.

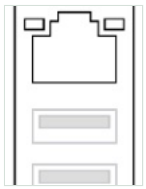
DisplayPort

For DisplayPort display devices. The protocol version varies by motherboard design; check the specification table for the given board.

On this board: **DisplayPort 1.4**, up to 4K@60Hz. Requires a processor with integrated graphics.



RJ45 LAN port



For an RJ45 LAN cable. Port speed varies by motherboard design; check the specification table for the given board. On this board the port is **2.5 Gb Ethernet**, driven by a Realtek RTL8125 controller.

RJ45 LAN port LED indicators

The speed table is generic. This port tops out at 2.5 Gbps, so an orange speed LED means 1 Gbps or 2.5 Gbps on this board.

连线 / 工作灯号	
状态	描述
关	网络未连接
黄色	网络已连接
闪烁	网络数据在使用中

速度灯号	
状态	速度
关	传输速率 10 Mbps
绿色	传输速率 100 Mbps
橙色	传输速率 1000 / 2500 / 5000 Mbps

Left table: 连线/工作灯号 = Link / Activity LED: 状态 = Status, 描述 = Description; 关 = Off (no network connection) · 黄色 = Yellow (network connected) · 闪烁 = Blinking (data activity)
Right table: 速度灯号 = Speed LED: 关 = Off (10 Mbps) · 绿色 = Green (100 Mbps) · 橙色 = Orange (1000 / 2500 / 5000 Mbps · 传输速率 = link speed). This board's port tops out at 2.5 Gbps.

Original LAN LED table; translation on the strip and in the table above (orig. p. 21)

Wi-Fi antenna connectors (external thread, internal pin)

For connecting the Wi-Fi antennas. Use antennas with male connectors (internal thread, external pin). Two gain antennas are supplied in the box.

5.1-channel audio jacks

For connecting audio devices:

- **Mic In** (pink), microphones and other input devices
- **Line Out** (green), powered speakers and other audio output devices
- **Line In** (blue), audio input devices

This is the arrangement on this board: three jacks driven by the Realtek ALC897 codec.

> **Why "5.1-channel" for three jacks:** out of the box these are exactly what their colors say: a stereo output (green), a stereo line input (blue), and a mono microphone input (pink). The 5.1 label refers to *jack retasking* in the Realtek audio software: reassign blue to Rear L/R and pink to Center/Subwoofer and the three jacks become three stereo output pairs, a true 6-channel (5.1) analog output, at the cost of the line-in and rear mic-in while so configured (the front-panel F_AUDIO mic jack still works). Left at defaults, it is stereo out plus two inputs.

BIOS Guide

1. BIOS overview

1.1 What the BIOS does

BIOS stands for Basic Input/Output System. When you turn the computer on, the BIOS is the first program that runs. Changes you make to BIOS settings are stored in battery-backed CMOS RAM, so that your settings are not lost when system power is cut. Under normal conditions, with the system running correctly, there is no need to change BIOS settings. If the battery runs down and CMOS data is lost, replace the battery and set the BIOS values again.

> **Note.** BIOS menu options and features differ between firmware versions. Treat the version installed on your board as authoritative.

2. Using the BIOS

2.1 Entering the BIOS

To open the BIOS setup screen:

1. Turn on or restart the system.
2. Wait for the screen to display `Press <DEL> to enter setup`.
3. Press **DEL** to enter the BIOS setup program.

2.2 Mouse controls

Left button → select.

2.3 Keyboard controls

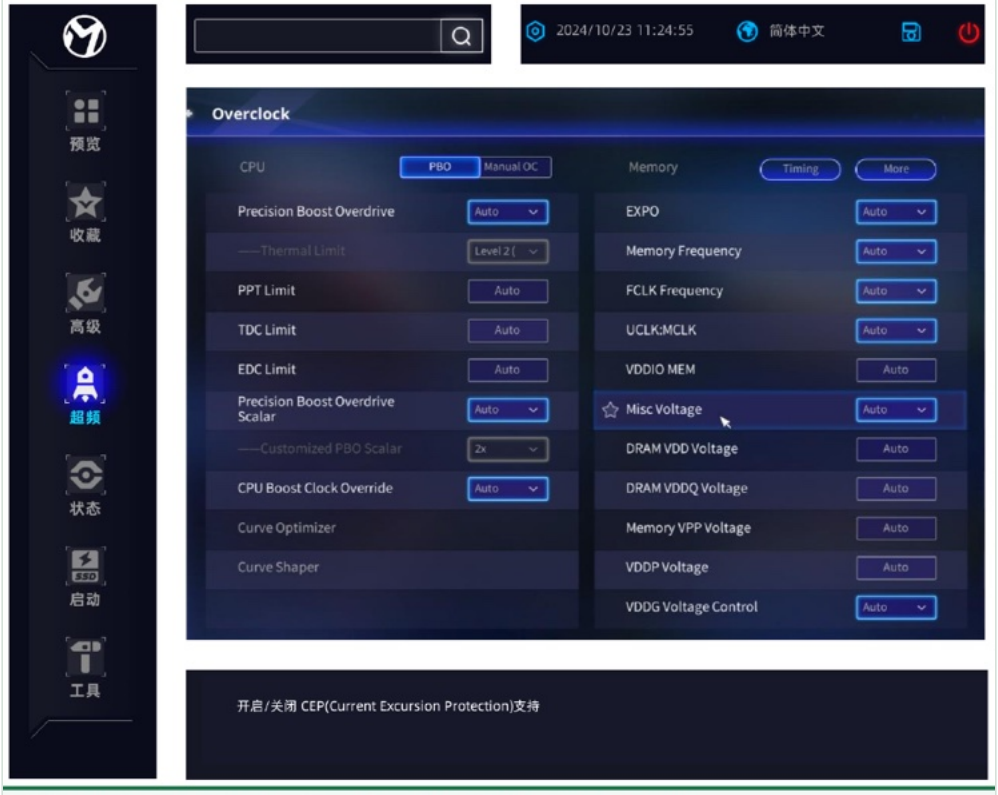
Key	Function	Key	Function
↑ ↓ → ←	Move	**F8**	EzUpdate
Enter	Select / confirm	**F9**	Load defaults
+ / −	Change option value	**F10**	Save and restart
F1	Help	**F11**	Return to Preview
F3	Fan control	**F12**	Screenshot
F4	Favorites	**Insert**	Add / remove favorite
F5	Search	**Home**	Return to main menu
F6	User settings		
F7	Previous setting value		

3. Interface overview

3.1 BIOS screen layout

The BIOS screen is divided into five functional areas: the **main menu bar**, the **option area**, the **option description area**, the **top search box**, and the **top function buttons**.

- The main menu bar opens seven screens: **Preview**, **Favorites**, **Advanced**, **Overclock**, **Status**, **Boot**, and **Tools**.
- Advanced, Overclock, and Boot each contain an option area.
- Screens with an option area show a description area at the bottom, explaining what the selected option does and what values it accepts.
- The top search box can be clicked to search for options. Search input must be in English, though results are displayed in whichever language the BIOS is currently set to.
- The top function buttons are: **BIOS clock setting**, **BIOS language selection**, **exit BIOS**, and **power off**.

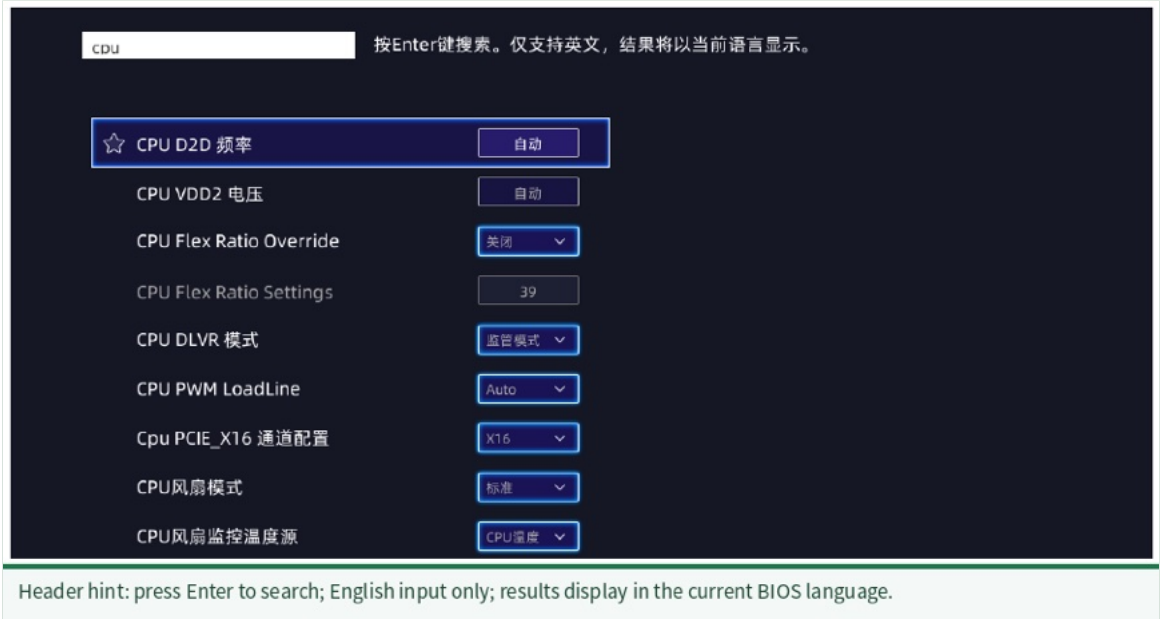


Sidebar, top to bottom: Preview · Favorites · Advanced · Overclock · Status · Boot · Tools.
Bottom bar shows the selected option's description; here: Enable/disable CEP (Current Excursion Protection) support.

The five screen regions, shown on the Overclock page (orig. p. 24)

3.2 Search screen

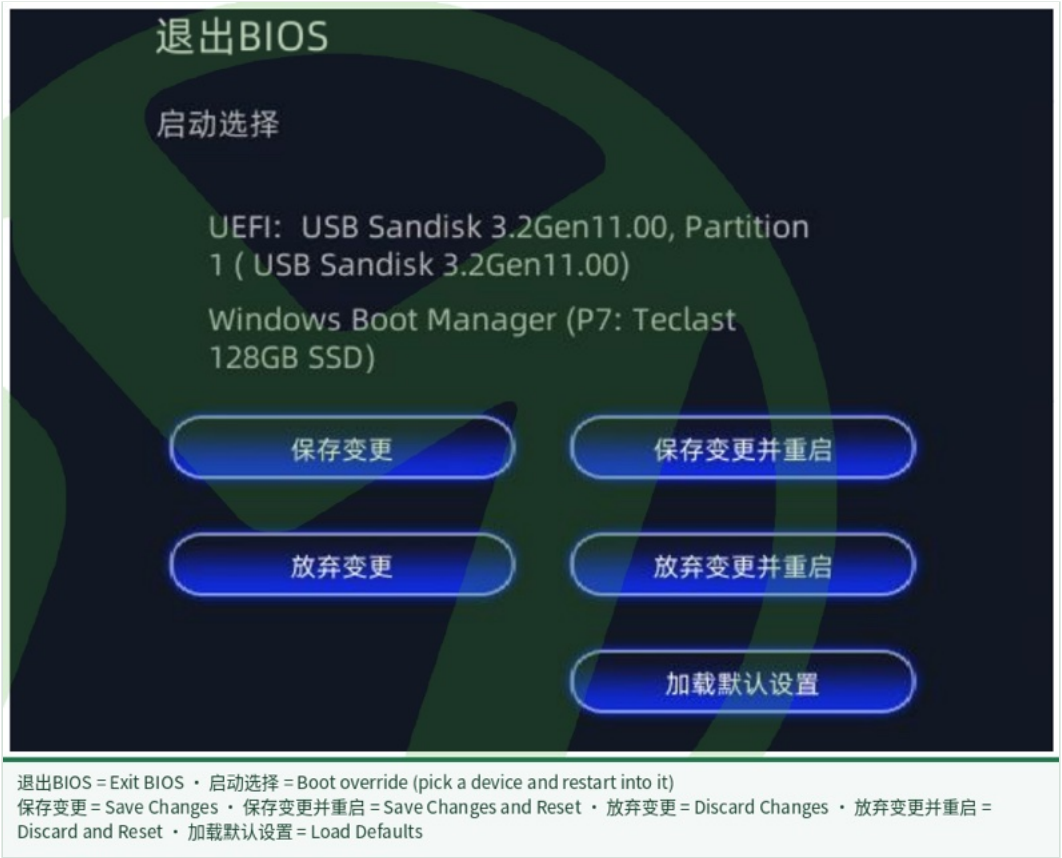
Click the search box to search for options. Press Enter to search. Search input must be in English; results are shown in the BIOS's current display language.



Search screen (orig. p. 25)

3.3 Exit BIOS screen

Click the **Exit BIOS** button at the top to open the exit screen. From here you can choose **Save Changes**, **Discard Changes**, **Save Changes and Reset**, **Discard Changes and Reset**, or **Restore Defaults**. You can also pick a boot device directly and restart into it.



退出BIOS = Exit BIOS · 启动选择 = Boot override (pick a device and restart into it)
保存变更 = Save Changes · 保存变更并重启 = Save Changes and Reset · 放弃变更 = Discard Changes · 放弃变更并重启 = Discard and Reset · 加载默认设置 = Load Defaults

Exit BIOS screen with boot override list (orig. p. 25)

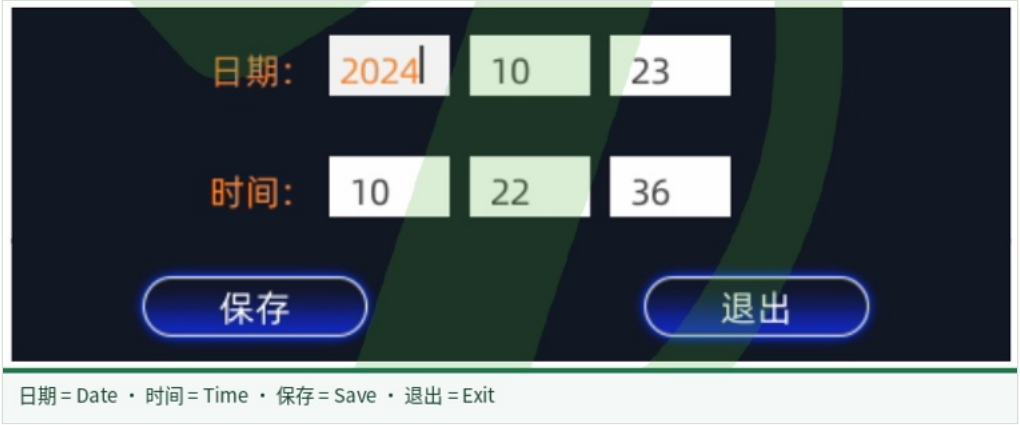
3.4 Save changes and restart

Choosing **Save Changes and Reset** from the exit screen, or pressing **F10** anywhere in the BIOS, opens the save-and-restart screen. This screen lists every option you have changed during the current BIOS session, showing the previous value beside the current value, and lets you adjust values again from that list. Click **Yes** to save and restart, or **No** to close the screen without leaving.

Save Changes and Reset: every changed option, previous value beside current (orig. p. 26)

3.5 BIOS clock setting

Click the **BIOS clock** button to open the date and time screen and set the BIOS clock.



BIOS clock setting (orig. p. 26)

BIOS screens and features

1. Preview

The Preview screen is divided into eight modules: **Function Buttons**, **Performance Mode**, **Memory Status**, **CPU Status**, **Fan Settings**, **Boot Priorities**, **H/W Status**, and **Basic Info**.

Preview screen and its eight modules (orig. p. 27)

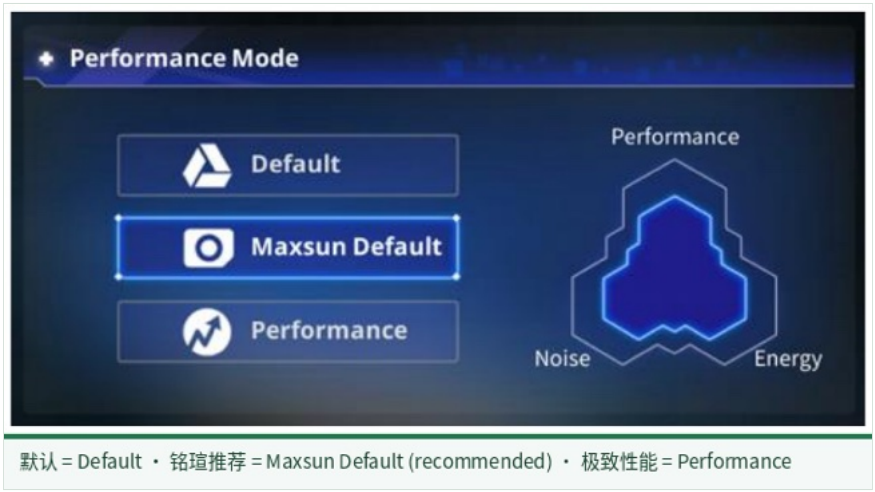
1.1 Function buttons

Four shortcut toggles: **EXPO**, **ReSize Bar**, **EUP**, and **RGB**. Clicking a shortcut enables that feature, and the corresponding detailed options elsewhere in the BIOS change to match.

Function buttons: EXPO, ReSize BAR, EUP, RGB (orig. p. 27)

1.2 Performance mode

Three performance presets: **Default**, **Maxsun Default** (the recommended setting), and **Performance**. Selecting a preset changes BIOS options such as PL1, PL2, and PWM Loadline to match.



Performance mode presets (orig. p. 28)

1.3 Memory status

Shows in real time which modules are installed in which slots, and reads basic SPD information from them. A **Memory Slot Warning** toggle sits at the top right of the module. With it enabled, if the system detects that memory is not installed in the optimal slots, the machine automatically enters the BIOS at power-on and displays a warning screen showing which slots are populated and which are recommended, with options to shut down or dismiss the warning.

内存状态
内存插槽警告
ON
OFF
内存插槽A1
N/A
内存插槽A2
Gloway International DDR5 24G 5600MT/s
内存插槽B1
N/A
内存插槽B2
Gloway International DDR5 24G 5600MT/s
内存状态 = Memory Status · 内存插槽警告 = Memory-slot warning toggle · 内存插槽 A1/A2/B1/B2 = DIMM slot A1/A2/B1/B2
你的内存插错了
CPU
你的内存插错了 = 'Your memory is in the wrong slots.' Red text: the system detected memory not installed in the optimal slots; shut down and move it to the highlighted slots to avoid performance loss.
关机 = Shut down · 取消 = Cancel

Memory Status module with the slot-warning toggle; right, the wrong-slot warning raised at power-on (orig. p. 28)

1.4 CPU status

Shows basic information about the installed CPU: model, cores and threads, frequency, and integrated graphics model.

CPU Status module (orig. p. 29)

1.5 Fan settings

Shows the current speed of each fan connected to the board. Click the **Fan Setting** button at the top right of the module to open the fan curve screen.

Fan Settings module (orig. p. 29)

1.6 Boot priorities

Sets which device boots first. Drag the icons with the mouse, or use the keyboard **+** and **−** keys.

启动优先级 = Boot Priorities ・ 提示 = Tip: drag the icons with the mouse, or use the keyboard + / − keys, to set boot device priority

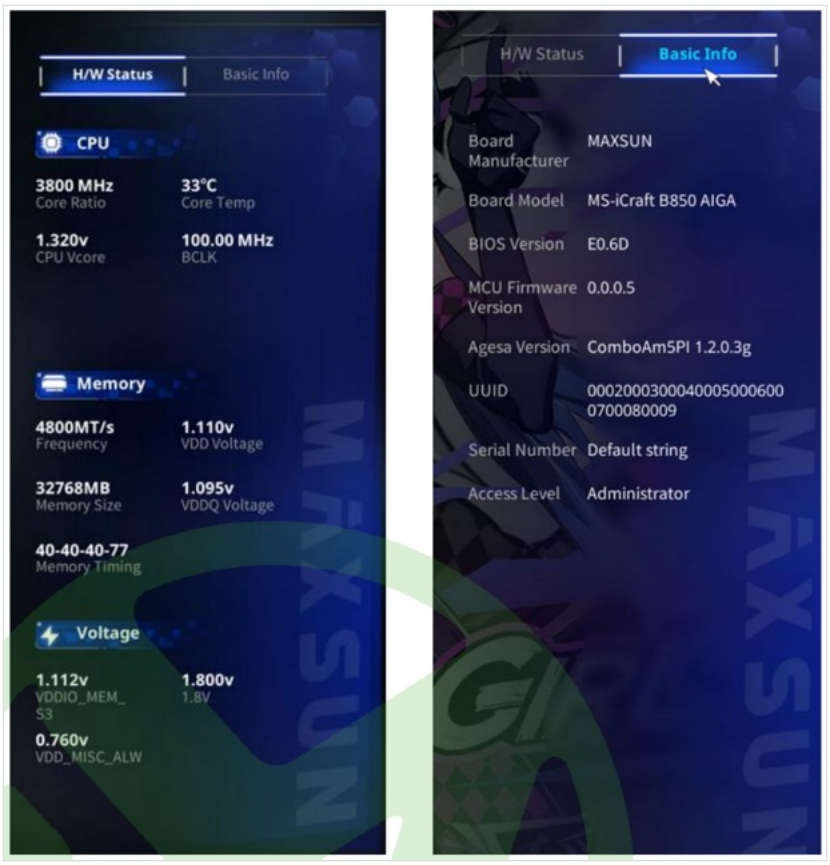
Boot Priorities module (orig. p. 29)

1.7 H/W status

Shows key CPU, memory, and voltage information in real time, including frequencies, temperatures, memory timings, and the various supply voltages.

1.8 Basic info

Shows basic information about the board, such as board manufacturer, board model, BIOS version, MCU firmware version, AGESA version, UUID, serial number, and access level.



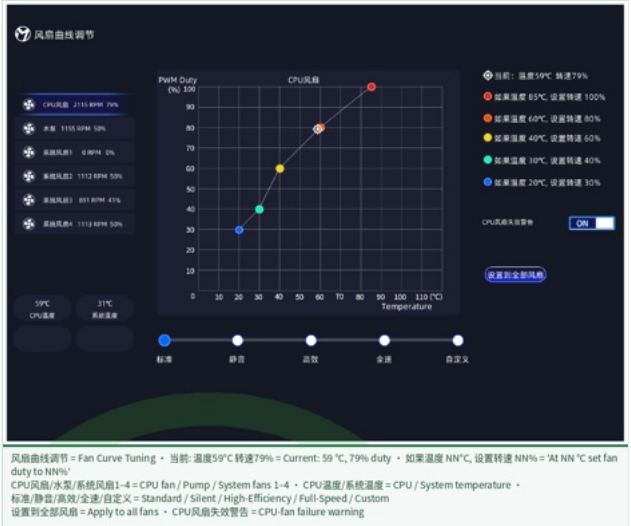
H/W Status and Basic Info panels. These screenshots come from the shared PTM UI and show a different board model (MS-iCraft B850 AIGA); your board reports its own name here (orig. p. 30)

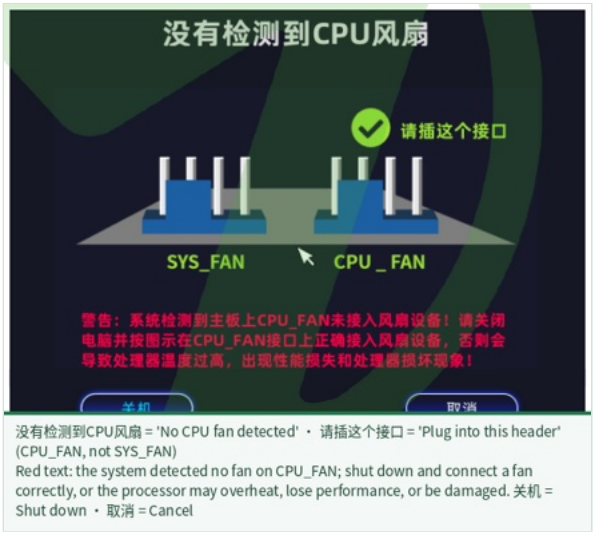
1.9 Fan curve tuning

The fan curve screen is reached from the **Fan Settings** module on the Preview screen, or from the **Fan Status** module on the Status screen. Here you can set the curve for each fan connected to the board, choosing one of four factory presets (**Standard**, **Silent**, **High Efficiency**, or **Full Speed**), or defining a curve manually.

Once one fan's curve is set, the **Apply to All Fans** button on the right copies that curve to every fan installed on the board.

This screen also holds the **CPU Fan Failure Warning** toggle. With it enabled, if the system detects that no fan is connected to the CPU_FAN header, the machine automatically enters the BIOS at power-on and displays a warning identifying the CPU_FAN header, with a shutdown option. The warning notes that running without a CPU fan causes excessive processor temperatures, performance loss, and possible processor damage.


风扇曲线调节
PWM Duty (%)
CPU风扇
Temperature
标准
静音
高效
全速
自定义
设置到全部风扇
风扇曲线调节 = Fan Curve Tuning · 当前: 温度59°C 转速79% = Current: 59 °C, 79% duty · 如果温度 NN°C, 设置转速 NN% = 'At NN °C set fan duty to NN%'
CPU风扇/水泵/系统风扇1–4 = CPU fan / Pump / System fans 1–4 · CPU温度/系统温度 = CPU / System temperature ·
标准/静音/高效/全速/自定义 = Standard / Silent / High-Efficiency / Full-Speed / Custom
设置到全部风扇 = Apply to all fans · CPU风扇失效警告 = CPU-fan failure warning


没有检测到CPU风扇
请插这个接口
SYS_FAN
CPU _ FAN
警告：系统检测到主板上CPU_FAN未接入风扇设备！请关闭电脑并按图示在CPU_FAN接口上正确接入风扇设备，否则会导致处理器温度过高，出现性能损失和处理器损坏现象！
关机
取消
没有检测到CPU风扇 = 'No CPU fan detected' · 请插这个接口 = 'Plug into this header' (CPU_FAN, not SYS_FAN)
Red text: the system detected no fan on CPU_FAN; shut down and connect a fan correctly, or the processor may overheat, lose performance, or be damaged. 关机 = Shut down · 取消 = Cancel

Fan curve screen with presets and the CPU-fan failure toggle; right, the no-CPU-fan warning raised at power-on (orig. p. 31)

2. Favorites

The Favorites screen collects the options you have bookmarked and lets you change them from one place.

To bookmark an option, click the gray star in front of it in the BIOS. The star turns white to confirm.

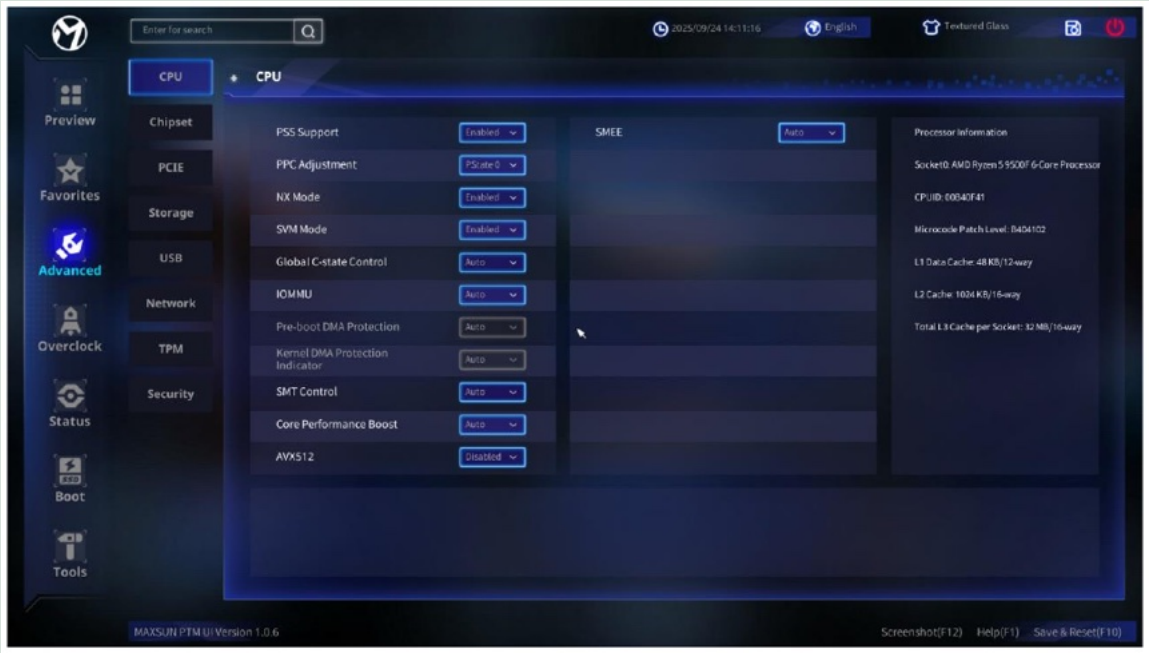
To remove a bookmark, find the bookmarked option or open the Favorites screen, and click the white star in front of it. The star returns to gray.

Favorites screen; starred options collect here (orig. p. 32)

3. Advanced

The Advanced screen contains eight submenus: **CPU Settings**, **Chipset Settings**, **PCIE Settings**, **Storage Settings**, **USB Settings**, **Network Stack**, **TPM Settings**, and **Security Settings**.

When the cursor is on the **Advanced** icon in the main menu bar, press → to move into the submenu list, use ↑ and ↓ to pick a submenu, then press → again to enter that submenu's option area.



Advanced screen, CPU Settings submenu open (orig. p. 33)

The eight Advanced submenus, top to bottom: CPU · Chipset · PCIe · Storage · USB · Network Stack · TPM · Security Settings (orig. p. 33)

4. Overclock

The Overclock screen contains three modules: **CPU**, **Memory**, and **Power**. Each holds the overclocking options for that area, and each has a button in its top right corner that jumps to a screen of advanced options.

> **Warning.** Any setting on this screen can cause the system to crash or the hardware to be damaged. Proceed with care.

Overclock screen: CPU, Memory, and Power modules (orig. p. 34)

5. Status

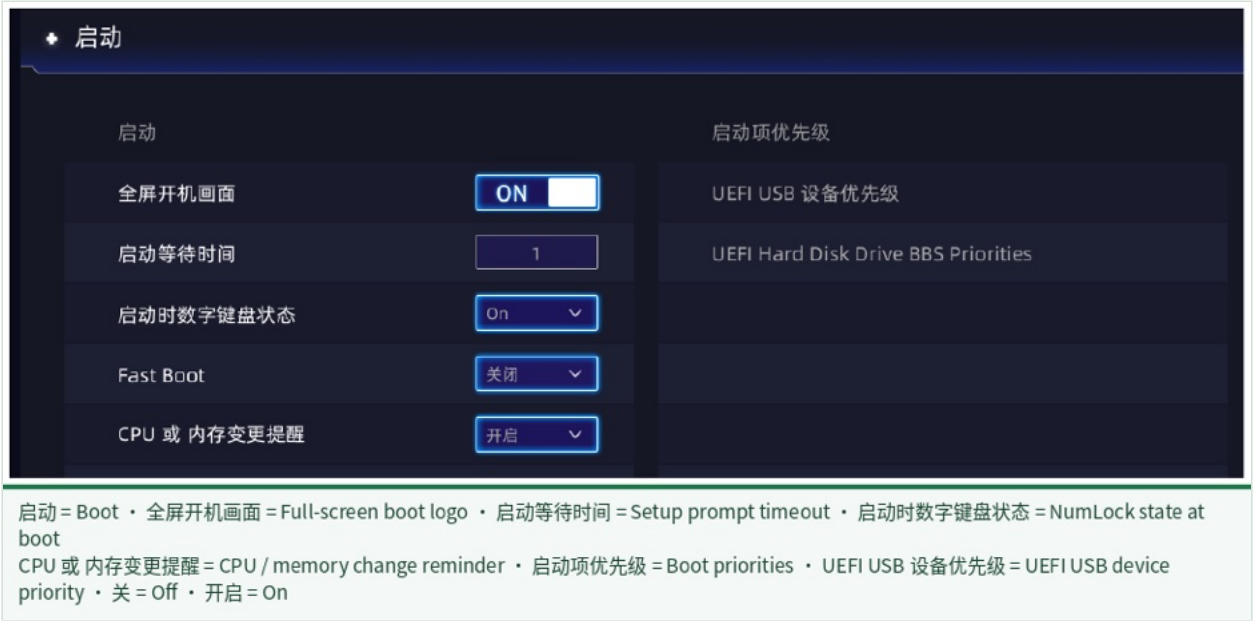
The Status screen contains six modules: **CPU Voltage/Temperature**, **Memory Voltage/Temperature**, **Board Voltage/Temperature**, **Fan Status**, **Board Information**, and **Power Options**.

- **CPU Voltage/Temperature** shows current CPU voltage and temperature readings.
- **Memory Voltage/Temperature** shows current memory voltage and temperature readings.
- **Board Voltage/Temperature** shows current motherboard voltage and temperature readings.
- **Fan Status** shows the speed of each fan installed on the board in real time. Click the **Fan Setting** button at the top right to open the fan curve screen.
- **Board Information** shows basic details about the board, such as model and BIOS version.
- **Power Options** holds the power-related settings, including LED configuration, LED mode, ACPI sleep state, hibernation, EUP, USB S4/S5 power, wake on USB from S4, wake on LAN, restore on AC power loss, and wake system from RTC.

Status screen. Screenshot shows the AIGA-themed skin of the shared PTM UI (orig. p. 35)

6. Boot

Option	Description
Full Screen Logo	Enable or disable the full-screen boot logo.
Setup Prompt Timeout	How long the system waits at boot for a keyboard shortcut. Settable from 1 to 65535 seconds.
Bootup NumLock State	Whether NumLock is active at startup.
Fast Boot	Enable or disable Fast Boot. When enabled, the system skips the boot wait time and USB, PS/2, and similar input devices are inactive during startup, so you cannot enter the BIOS from the keyboard. It takes effect only if the operating system, the primary boot device, and the primary display device all support UEFI. Leave it disabled unless you have a specific need for it.
CPU or Memory Change Reminder	Warn when a change of CPU or memory is detected.
UEFI USB Device Priority	Set which UEFI USB device boots first.
UEFI NVME Device Priority	Set which UEFI NVMe device boots first.
UEFI HDD Device Priority	Set which UEFI hard disk device boots first.


启动
启动
全屏开机画面
ON
启动等待时间
1
启动时数字键盘状态
On
Fast Boot
关闭
CPU 或 内存变更提醒
开启
启动项优先级
UEFI USB 设备优先级
UEFI Hard Disk Drive BBS Priorities
启动 = Boot · 全屏开机画面 = Full-screen boot logo · 启动等待时间 = Setup prompt timeout · 启动时数字键盘状态 = NumLock state at boot
CPU 或 内存变更提醒 = CPU / memory change reminder · 启动项优先级 = Boot priorities · UEFI USB 设备优先级 = UEFI USB device priority · 关 = Off · 开启 = On

Boot screen (orig. p. 36)

7. Tools

The Tools screen contains three modules: **Custom Profiles**, **BIOS Change**, and **BIOS Update**.

- **Custom Profiles**: save all current BIOS settings as a profile (six profile slots are available), save a profile to a file, or load settings from a saved file.
- **BIOS Change**: choose Save Changes, Discard Changes, Save Changes and Reset, Discard Changes and Reset, or Restore Defaults. You can also pick a boot device directly and restart into it.
- **BIOS Update**: load a BIOS update file for this board from a hard drive or USB storage device and flash it.

Sidebar and modules are shown in English; 06 slot selected. Save into File / Load From File = export or import a settings profile.

Tools screen: profiles, BIOS change, BIOS update (orig. p. 37)

During a BIOS update. Do not shut down or restart the machine, and do not remove the drive holding the BIOS file. Doing so may leave the system unable to enter the BIOS or boot. The mouse and keyboard are locked while the update runs.

BIOS更新中 39% = 'BIOS updating, 39%'. Red text: do not shut down or restart during the update, and do not remove the drive holding the BIOS file, or the system may become unable to enter the BIOS or boot; the mouse and keyboard are locked while the update runs.

BIOS update in progress; heed the red warning (orig. p. 37)

Platform & BIOS Updates (researched Aug 2026)

This section is not part of the original manual. It was compiled by the translator on 30 August 2026 from MAXSUN and AMD-platform sources, and covers what has changed since this board launched in October 2025, and how to keep it current.

Where BIOS updates for this board come from

This board ships with the PTM UI BIOS natively; MAXSUN's October 2025 adaptation plan lists MS-Terminator B850BKB WIFI in the native-support group, so updates arrive as full PTM UI images rather than as a UI migration. Downloads are reached from the product page at **maxsun.com/products/ms-terminator-b850bkb-wifi** (Support tab), and the board has a dedicated download page on the Chinese site, **maxsun.com.cn/2025/1030/6655.html**, last refreshed 28 Aug 2026, carrying every BIOS build for both board revisions (Model Ver V0 and V1), the full driver set, and the CPU / DDR5 support-list PDFs. The table below reproduces that page's BIOS history. MAXSUN support (hotline +86-400-696-0606 or WeChat, CN market) remains the fallback.

> **Flash only packages issued for MS-Terminator B850BKB WIFI.** MAXSUN's catalog is full of similarly named boards (B850M WIFI, B850M PRO, B850ITX...) whose images will not run on this PCB. The BKB shares its manual boilerplate with those models, but not its firmware.

BIOS releases for this board

As published on the board's official download page (retrieved 29 Aug 2026). Release notes are translated from the Chinese originals; verify wording on the page itself. Files download from MAXSUN's server and each package applies to Model Ver V0 and V1.

Version	Date	Package	What it changes
E2.4D (beta)	29 Jun 2026	**MSTerminatorB850BKBWIFI24.zip**	Updates AGESA to the **PI 1.3.0.1B patch**; fixes SATA-attached drives showing up in Windows as removable devices; fixes a recovery/activation-key prompt on entering the OS after a BIOS update; expands BIOS language support; the all-LED lighting mode now defaults to Rainbow.
E1.7D	16 Jan 2026	**MSTerminatorB850BKBWIFI17.zip**	Refines the BIOS voltage-setting options; adds a **Memory Latency Reduce** feature; minor BIOS interface adjustments; improves memory compatibility; adds **CUDIMM** memory support.
E1.3D	31 Oct 2025	**MSTerminatorB850BKBWIFI13.zip**	BIOS can now read update files from **NTFS and exFAT** drives (no longer FAT32-only); option-layout tuning; adds a **Game Turbo Mode** option.
E1.2D	29 Oct 2025	**MSTerminatorB850BKBWIFI12.zip**	Original release.

> Reading the ladder: a board still on its launch BIOS gains the most from **E1.7D** (memory-compatibility work, CUDIMM support, the Latency Reduce toggle, voltage-option cleanup), while **E2.4D (beta)** adds the 1.3.0.x-line microcode discussed below plus the SATA and post-update key fixes. From E1.3D onward the update stick no longer has to be FAT32.

Two ways to flash

Method A, inside the BIOS (recommended): the PTM UI's **Tools → BIOS Update** flow documented in the BIOS chapter of this manual. Put the update file on a FAT32 USB stick or a local disk, select it, and let the progress screen finish; the red-text warnings about power loss on the update screen apply in full.

Method B, MAXSUN's EFI auto-flash from USB: the method MAXSUN documents for its boards generally. Unpack the downloaded archive and copy the entire **EFI** folder to the root of a FAT32 stick; disconnect other drives; boot and press **F11**; pick the boot entry beginning with "UEFI"; a countdown screen then flashes the BIOS automatically. Do not cut power or restart while it runs.

> After any flash, load BIOS defaults first, then re-apply your settings (EXPO, fan curves, boot order, ARGB) by hand. Saved-profile files from an older BIOS version are not guaranteed to import cleanly into a newer one.

AMD AGESA microcode: what the updates since launch contain

Motherboard BIOSes on AM5 wrap AMD's AGESA microcode; vendors fold each AGESA drop into their own images on their own schedule. The line relevant to a board bought at launch:

AGESA (ComboAM5)	Rollout	What it brings
1.2.0.2x	Late 2024 (launch BIOSes)	B850 launch support, including Ryzen 7 9800X3D.
1.2.0.3a (+ Patch A)	Jan–Mar 2025	Adds Ryzen 9 9950X3D / 9900X3D; improves single-rank 2DPC and dual-rank 1DPC memory compatibility; enables 64 GB UDIMMs; this is what lifts a two-slot board like this one to 2 × 64 GB = 128 GB.
1.2.0.3b Patch C	Spring 2025	Further DDR5 compatibility tuning.
1.2.0.3c	From Jun 2025	Security update patching a critical Zen 5 microcode flaw in Ryzen 9000-series CPUs; vendor builds also fixed an fTPM settings-visibility bug.
1.3.0.0a	Feb 2026 (beta builds)	Stability wave delivered first as vendor **beta** BIOSes: fixes no-boot scenarios (including systems that stop booting after a period of use) alongside Ryzen 9000 stability work and further memory-compatibility tuning.
1.3.0.1	From Apr 2026	Current microcode line as of this writing; compatibility improvements, and the generation aligned with the late-2025 X3D refresh (e.g. Ryzen 7 9850X3D). Reaches this board as the "PI 1.3.0.1B patch" inside BIOS **E2.4D (beta)**.

Version numbers describe AMD's platform microcode, not a specific MAXSUN build; the BIOS for *this* board is whatever its download page currently lists, and its release note will name the AGESA inside.

Beta BIOS builds: what's in them

On AM5, each AGESA drop reaches users first as **beta** BIOS builds, then hardens into the general release. The February 2026 beta wave is a good picture of what betas carry: boards across the 600/800 series (B850 included) received builds on AGESA ComboAM5 PI 1.3.0.0a aimed at no-boot scenarios (including machines that stop booting only after extended use), Ryzen 9000 stability, and memory-module compatibility; the same microcode line then reached general builds as 1.3.0.1 from April. The practical rule: if this board develops a boot or memory-training problem that defaults and reseating don't cure, a current beta is where the fix lands first; on this board they are published straight on its download page: **E2.4D (beta)** in the table above is exactly that.

Feature-wise, MAXSUN has said it will keep extending the PTM UI over time; its current toolset (graphical fan curves with one-touch presets, BIOS settings profiles, search, the changed-options log shown at save, and Favorites) is already the set documented in this manual's BIOS chapter, and a beta build's release note names any additions along with the AGESA inside.

Looking further out: reports through early 2026 place the next-generation Zen 6 X3D parts in pre-production, and AMD's openSIL, the planned open-source successor to AGESA, is being brought up on AM5 hardware ahead of that generation. Both are early signals, not shipping features; they mainly reinforce the earlier caution to confirm a BIOS listing before installing any future CPU in this board.

Drivers

AMD's B850 chipset driver stood at **8.01.20.513** (16 Feb 2026) at the time of writing. The early-2025 branch (7.01.08.129) introduced dual-CCD scheduling optimizations and the 3D V-Cache Performance Optimizer driver, which matters if you pair this board with an X3D or dual-CCD processor. Install from amd.com or from the board's download page.

The board's download page also carries the rest of the kit: Realtek 2.5G LAN drivers (Win10/11), the Realtek ALC897 audio driver (6.0.9239.1), the MediaTek MT7922 Wi-Fi/Bluetooth driver, AMD RAID drivers, the onboard LED-controller driver with the MAXSUN RGB lighting app, the original Chinese A0 manual this translation is based on, and the AMD AM5 CPU and DDR5 memory support-list PDFs.

Practical notes

Running a 9800X3D: the early-2025 AM5 boot and stability reports across vendors were addressed in the 1.2.0.3x line, so a BIOS from mid-2025 or later is the sensible baseline. Newer AGESA also caps the automatic SOC voltage near 1.30 V when EXPO is enabled; that is intended platform behavior, not a board fault.

Future processors: MAXSUN's November 2025 board wave is advertised as ready for future AM5 processors; this October 2025 model did not carry that labeling at launch. Before installing a next-generation CPU, confirm a BIOS release for this exact model lists it as supported.

A discrepancy, resolved: MAXSUN's specification lists a COM (serial) header that the manual's layout diagram never marks. The header exists: it is silkscreened **JCOM1** on the physical board, a keyed 9-pin block on the front edge beside the USB header cluster.

Sources: the board's official download page (maxsun.com.cn/2025/1030/6655.html, retrieved 29 Aug 2026); maxsun.com product page and BKB launch blog; MAXSUN CN download index and PTM UI adaptation plan (maxsun.com.cn, Oct 2025); MAXSUN official X announcement (Oct 2025); TechPowerUp launch coverage (Oct 2025); ITHome coverage of MAXSUN's Nov 2025 boards; vendor BIOS release notes and platform reporting on AGESA 1.2.0.3a/c (Jan–Jun 2025) and 1.3.0.1 (Apr 2026); AMD B850 chipset-driver release notes (Feb 2026); ASRock/TechPowerUp reporting on the AGESA 1.3.0.0a beta wave (Feb 2026); platform reporting on Zen 6 pre-production and openSIL bring-up on AM5 (early 2026).

Appendix: Quick Reference

At a glance

Socket / chipset	AMD AM5 (LGA1718) · AMD B850
Form factor	Mini-ITX BKB, 171 x 171 mm, rear-mounted graphics slot
Memory	2 x DDR5 UDIMM, up to 128 GB, up to DDR5-8400 (OC), EXPO
Graphics slot	PCIe 5.0 x16 on the rear face (x8+x8 bifurcation supported)
Second slot	PCIe 4.0 x4, chipset, front side, open-ended
Storage	M.2_A (front) and M.2_B (rear), both CPU PCIe 5.0 x4, 2242/2280 · SFF-8654 4i (chipset PCIe 4.0 x4/x2) · 2 x SATA 6Gb/s
Rear USB	1 x Type-C 10 Gbps with DP 1.4 Alt · 4 x Type-A 10 Gbps · 4 x Type-A USB 2.0
Front USB headers	1 x Type-C 20 Gbps · 1 x 19-pin 5 Gbps (2 ports) · 2 x 9-pin USB 2.0 (4 ports)
Video outputs	HDMI 2.0 (4K@60Hz) · DisplayPort 1.4 (4K@60Hz) · DP Alt on rear Type-C
Networking	Realtek RTL8125 2.5 GbE · MediaTek MT7922 Wi-Fi 6E + Bluetooth 5.4
Audio	Realtek ALC897 · 3 rear jacks · internal SPDIF header
Fan headers	1 x CPU (PWM) · 1 x PUMP (DC) · 2 x chassis (PWM)
Power connectors	1 x 24-pin ATX · 1 x 8-pin +12V CPU
Lighting	1 x 3-pin 5V ARGB header · Maxsun Sync · off by default
Diagnostics	Distributed debug LEDs: CPU → DDR → VGA → BOOT

First-boot troubleshooting order

1. **No power at all**: verify the 24-pin and the 8-pin CPU power connectors are both fully seated, and that the front panel Power Switch leads are on F_PANEL pins 6 and 8.
2. **Powers on, no display**: read the debug LEDs. The stage that stays lit identifies where POST stopped.
3. **DDR_LED lit**: reseat both modules in A1 and B1, and clear CMOS with the rear button if an EXPO or manual memory profile was applied.
4. **VGA_LED lit**: confirm the graphics card's PCIe power cables are connected, the display cable is on the card rather than the motherboard, and the card's video BIOS supports UEFI.
5. **BOOT_LED lit**: confirm the boot drive is detected in the BIOS, and that the operating system was installed in UEFI mode on a GPT disk.
6. **Warning screen at power-on**: the BIOS raises a memory-slot warning or a CPU fan failure warning automatically. Follow the on-screen instruction before continuing.

Support

MAXSUN China	https://www.maxsun.com.cn
MAXSUN Global	https://www.maxsun.com
Service line (China)	+86-400-696-0606
Source document	MS-TerminatorB850BKBWIFI_A0 (Simplified Chinese)

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